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TORONTO, CANADA, JANUARY, 1900.

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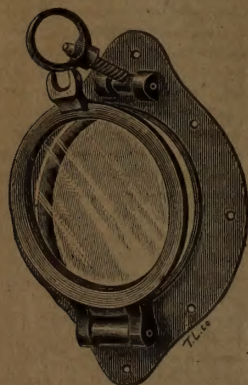
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Steel Steam Vessels of every description
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TORONTO, CANADA, JANUARY, 1900.

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Unnecessary Railway Correspondence.

One of our subscribers, a thoroughly practical man, writes us as follows over the signature "Anti-Red Tape." What he has to say is without doubt worthy of most careful consideration:—

"I am holding a small position on a large railway in Canada. I would like to draw the attention of the higher officials, such as general superintendents, managers, etc., to a growing abuse—unnecessary correspondence. Take the following example: In conversation with a chief despatcher the other day, he told me that regarding the train service over-time tickets, the routine was as follows: 1st—He made an explanation of the over-time with each trip ticket. 2nd—He received a letter about each individual train that went into detention, & explained that. 3rd—The master mechanic sent in engineer's detention tickets & he explained again. 4th—He received from the general superintendent at the end of each month a statement of the over-time paid conductors & brakemen, & explained that. 5th—He received from the general superintendent a statement of the detention time paid engineers and firemen, & explained that. 6th He made up a statement from his train sheets monthly, showing the over-time. That is, he made six explanations of the same thing, where one should be sufficient. Can any sensible man defend such a system?

"Another case recently came under my notice: A latch was required on a coal chute. The locomotive foreman wrote the superintendent that a latch was required; the superintendent wrote the divisional engineer asking what it would cost; the divisional engineer sent papers to his building foreman for report; the building foreman returned them, saying 50c.; the divisional engineer forwarded them to the superintendent, who forwarded them to the general superintendent, asking if he would put it on; the general superintendent said to do so; & the correspondence followed the course around again. Meantime it had cost 75c. to pick the coal up which had been wasted.

"All this correspondence has followed the advent of cheap stenography & the typewriter, & is the result of an ambition on the part of the higher officers to keep well posted on details, which can only be done to the exclusion of more important matters, & results in making minor officials wooden-heads, whereas if they were given some scope & held for results, it would make men of them & better results would follow. Another cause is that some of the officials are of the opinion that the more mail they handle the better service they render, whereas, so far as the shareholders & public are concerned, all they ask is results, & some men with their hands in

their pockets, smoking a cigar, & apparently doing nothing, are accomplishing more by thinking than the other fellow will in a lifetime with his nose ground down to the desk all day."

Commercial Travelers' Baggage.

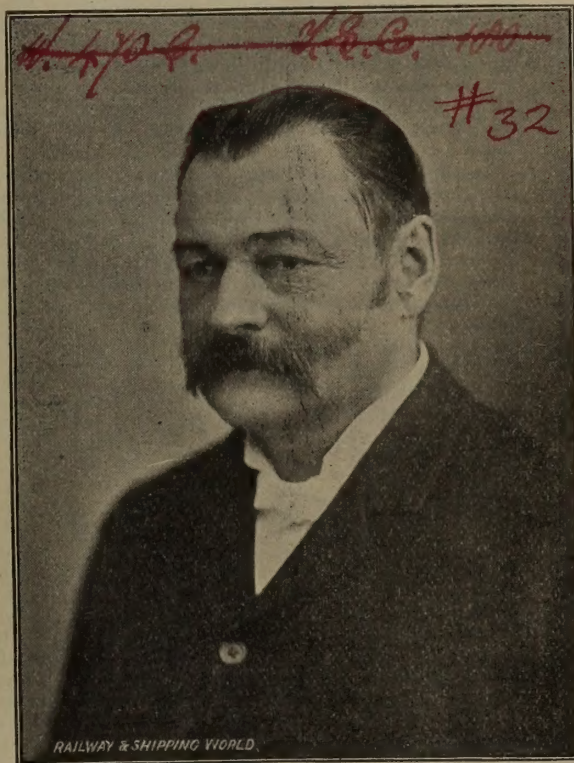
"A Commercial Traveler" writes us: The question of convenience, time & profit, in relation to the commercial travelers & the railways, suggests a few ideas which might be considered by both interests. The railways & their employes are, as a rule, ever ready to

for being carried, & formulate a price that would be known to everyone—say, 100 lbs. of baggage 100 miles for 10c.? This sum may be too low or too high, but no doubt their mathematicians could give a price that would pay the railways. Were this system introduced, it would save the railways the cost of excess tickets & prepaid certificates. It would save the baggagemen no end of trouble just when a train was leaving. It would end the question of a commercial traveler handing any baggage to a companion going light. The idea being still further followed out would be facilitated by books of coupon tickets, which could be issued by the railways for any mileage or weight of baggage, & interchangeable on any line of railway or boat.

So far this may read as if it was all well studied out for the railways' benefit, but an idea to be of enough value for adoption between two people must be of value to both. Were this idea adopted, the commercial travelers could have their baggage all settled for by their firms before leaving for their trips. When leaving a station, the time lost in having to be there long before train time to have excess made out or prepaid certificate attended to, is well known to mostly every man on the road. Under this idea, commercial baggage could be checked as any ordinary traveler's trunks. On arrival at its destination it could be settled for by the commercial traveler. If he travelled 50 miles he would simply give up 50 miles in coupons. Every firm knows to a pound or two what their travelers are carrying, & how long a trip they will have, so the matter could easily be calculated, & it is much satisfaction to know your baggage is all settled for. By this idea the commercial traveler has the very last moment in the town he is leaving for business, just saving enough time to pack & get to the station. Under the present system he must be there from at least a quarter of an hour before train time. Then, a commercial traveler has more time when he arrives, to look after the railway's requirements.

These books of coupons would have the commercial traveler's name & certificate number & firm's name. Each coupon being numbered, belonging to a series, would easily be checked by the railways. Should a commercial traveler send part of his baggage back to his firm before he has completed his trip, it is easy to compute the number of coupons to pay on the balance. Should a commercial traveler not use his entire book, the balance could be used on a later trip, or used as part payment on a new book.

The amount of money saved to the railways by this method would very likely permit a reduction of the rate per mile on commercial travellers' passenger transportation, possibly bringing it to 2c. a mile, & if this were so,



GEORGE BELL REEVE,

General Traffic Manager of the Grand Trunk Railway System and of the Central Vermont Railway.

facilitate this part of their traffic, & it is no small part either. The commercial travelers have rarely appreciated the trouble the railways have in the handling, checking, & all the other etc., of this immense traffic. There are probably 10,000 commercial travelers, carrying, in the year, say, nearly 5,000 tons of baggage, on which the railways collect nothing direct. When this is considered, with the cost of the excess cards, prepaid certificates, & baggage-men, it is easily seen that the balance of baggage that pays its way must also pay for that which is nominally free.

Why not make all commercial baggage pay

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& TELEPHONE INTERESTS.

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The Canadian Roadmasters' Association.

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NEXT ANNUAL MEETING at Montreal, Oct. 17 & 18, 1900.

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NEXT ANNUAL MEETING at Hamilton, Ont., Oct. 10,
1900.

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TORS, D. L. Foley, Toronto; E. J. O'Dell, Owen Sound.

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SECOND VICE-PRESIDENT.—W. H. Frisby, Three Riv-
ers, Mich.

HON. SECRETARY-TREASURER.—Acton Burrows, 33
Melinda Street, Toronto.

NEXT ANNUAL MEETING at Montreal, Oct. 16, 1900.

there would be no reason why the employers
of travelers would not also buy the passenger
as well as the baggage transportation for their
travelers, for their entire trip, before they
leave. These suggestions are submitted for
criticism, & I hope to elicit opinions on the
subject from railway officials.

RAILWAY FINANCE, MEETINGS, &c.

Albert Southern Ry.—On Dec. 28 we were
officially informed that negotiations had been
going on relative to the sale of this road, but
that there was nothing to be made public in
regard to the matter further than that the
parties proposing to purchase were the same
as those whose names have been recently
mentioned in connection with the purchase of
the Salisbury & Harvey Ry. The A.S. Ry. is
very much out of repair, & the rolling stock
consists of an engine & some flat cars. It is
not now connected with the S. & H. Ry., the
bridge between Albert & Harvey having been
carried away, & the line is now used only be-
tween Prescott's Mill at West River & Harvey
Bank, to haul logs, deals, etc. Some years
ago it was sold to Judge Wells, of Moncton,
but passed out of his hands & is now operated
by W. A. Trueman as trustee of the estate of
the late G. S. Turner. (Dec. '99, pgs. 346 &
363.)

American Railway Earnings.—The regu-
lar monthly compilation by the Financial
Chronicle shows that 122 railways report an
increase in gross earnings of \$5,923,048 for
Nov., 1899. Of this total increase \$5,501,972
was by 47 roads out of the 122, the systems
showing gains exceeding \$200,000, being as
follows:

Chicago, Milwaukee & St. Paul.....	\$522,237
New York Central.....	519,748
Canadian Pacific.....	416,503
Louisville & Nashville.....	347,221
Southern Railway.....	271,653
Missouri Pacific.....	250,092
C., C. & St. L.....	242,281
Grand Trunk System.....	236,913
Great Northern System (U.S.A.)....	226,276

There was a gain of 10.9% over the gross
earnings of Nov., 1898, which showed an in-
crease of 4.5% over 1897, which in turn made
an increase of 21% over the earnings of 1896,
which were also 10.1% greater than the earn-
ings of November, 1895. A heavy increase
in railway earnings has generally been largely
due to the movement of unusual grain or cot-
ton crops. During Nov., 1899, however, the
shipments of wheat were nearly 20,000,000
bus. less than for Nov., 1898, & there was
a considerable falling off in the traffic in corn,
cotton & live stock. The cause of the large
earnings is, therefore, to be found in the un-
precedented industrial activity. The mills
throughout the country are absorbing vast
quantities of raw material & turning out fin-
ished products in volume hitherto unknown.—
Railroad Gazette.

The Calgary & Edmonton Ry. Co. announce
that the Dominion Government subsidy for
the six months ended Dec. 31, together with
the net earnings of the Co. to Oct. 31 last,
will permit of a distribution on the first mort-
gage bonds of £1 5s. in respect of interest
due Jan. 1. The Co.'s certificate will be given
for the unpaid balance of coupon.

Net earnings Nov. '99, \$12,365.54, against
\$5,694 in Nov. '98.

Canada Southern.—At a meeting in New
York, Dec. 21, F. W. Vanderbilt was elected
a director, succeeding his brother, the late C.
Vanderbilt. C. F. Cox, formerly Vice-Presi-
dent, was elected President, & his place was
taken by E. A. Wicks. F. Middlebrook was
elected Treasurer. The usual semi-annual
dividend of 1% was declared.

Canadian Pacific.—Baring Brothers & Co.,
London, Eng., announce the payment on Jan.
1, of the coupons then due of the following
issues: Atlantic & Northwestern Ry., 5% ster-
ling 1st mortgage bonds; C.P.R. (Algoma
Branch) 5% 1st mortgage bonds; C.P.R. 5%
bonds; C.P.R. 3½% land grant bonds.

Coast Ry. of Nova Scotia.—At the adjourn-
ed annual meeting at Yarmouth, Dec. 13, the
following were elected:—President, T. Rob-
ertson, M.P.P.; Vice-President, W. B. Ross,
Halifax; other directors, Senator Lovitt, J.
Burrill, A. M. Hatfield, Yarmouth; G. A.
Cox, Shelburne; W. H. Jackson, J. H.
Noblitt, J. S. Engart, Philadelphia, Pa.; Sec-
retary, — Cooper.

Dominion Atlantic net earnings, 11 months
to Nov. 31, 1899, \$706,025, against \$594,271
for corresponding period.

Great Northwest Central.—A special gen-
eral meeting of shareholders will be held at
the head office, room 200, Union Station,
Toronto, on Jan. 22, to consider whether it is
expedient to lease the Co.'s railway to the
C.P.R. Co., & if so, to settle the period &
the terms & conditions of the lease. To as-
certain the amount of the claims against the
Co., & provide, as far as possible, for their
payment. To authorize the issue of bonds, &
to authorize a mortgage on the properties to
trustees to secure the payment of the bonds &
interest & to nominate the trustees.

The Co. will make application to the Minis-
ter of Railways in Ottawa, on Mar. 3 for the
sanction of the Governor-in-Council to a lease
of its railway to the C.P.R. Co. in perpetuity,
at which time and place the lease will be sub-
ject to inspection, & all persons interested
may appear & be heard on the application.

Great Northern (U.S.A.).—It is said em-
ployees of the Co., including conductors, driv-
ers & other trainmen, are to become stock-
holders in Feb. It is understood the manage-
ment has decided to recommend to the stock-
holders, a plan for the distribution of a large
block of the Co.'s shares among the men who
have been in the service of the Co. for a cer-
tain number of years. The sum will aggre-
gate several hundred thousand dollars. It is
said that the plan will be to increase the
capital stock 10% & to allow the men to sub-
scribe for a round amount at par.

It is said President J. J. Hill has acquired a
majority interest in the stock of the St. Paul
& Duluth R.R., an independent line connect-
ing Duluth & Minneapolis & St. Paul. The
Chicago, Milwaukee & St. Paul road has had
traffic arrangements with the Duluth road &
it is predicted that this line will now build a
road to Duluth. This will make a total of
four roads between the points mentioned.

It is reported that President Hill expects to
consolidate his recent purchases, the Sioux
City & Northern, & the Sioux City & Western,
with the southwestern branches of his railway
system into one subsidiary system, with head-
quarters at Sioux City.

Miles Canyon & Lewes River Tramway Co.
—A special general meeting of shareholders
will be held at Victoria, B.C., Jan. 23, to ar-
range for providing funds for constructing
& equipping the line.

Ottawa & New York.—An important case
was decided at the recent sessions at Ottawa
by Judge Mosgrove. W. D. Lees, an Ottawa
barrister, has an office also in the town of
Russell, & in connection with his business
there makes trips to that place, using the O.
& N.Y. line. In his statement of claim, Mr.

Lees says the Co. held itself out as a common carrier & took & carried goods & passengers on its line for hire. From July 30, 1898, until May 20, 1899, Mr. Lees paid the Co. \$49.55 for railway fares, & he claimed that the Co. has no right to collect that or any amount by law, because it had not complied with the provisions of the Railway Act. He therefore claimed that he was entitled to the return of the money he had paid, & also for three times the amount of the money paid. He based his case on the section of the Railway Act which requires a railway company to publish in the Canada Gazette for a certain period its rates, & the same must be approved by the Railway Committee. For non-compliance the Railway Company must return the fares, & three times the fares, to the passenger. It was shown that the Co. had not carried out these requirements of the Railway Act, & for that reason the judge gave a decision for Mr. Lees. Counsel for the defendants contended that Mr. Lees had paid the money voluntarily & had received value for the services rendered. An appeal will be entered against the decision. A jury had been secured to try the case, but it was not referred to them.

From Ottawa comes an unconfirmed press report that there is a probability of this line, after it is completed next summer, being secured by the C.P.R. It is claimed that it will shorten the passenger time between Ottawa & New York by three hours.

Pontiac Pacific Jet.—At a special meeting of shareholders in Montreal Dec. 15, the acceptance by the directors of H. J. Beemer's contract for building of 9 miles of railway from Aylmer to Hull was ratified. The issue of \$180,000 bonds as collateral security to him was approved of.

Pullman-Wagner.—By the consolidation of the Pullman & Wagner palace car companies, concluded Dec. 30, W. E. Vanderbilt, F. W. Vanderbilt, W. S. Webb & J. P. Morgan became directors of the Pullman Co. When the consolidation plan was agreed upon in Chicago in Oct. last, it was stated that it would not be many months before the Vanderbilts had a man of theirs as President of the Pullman Co. The President at present is R. T. Lincoln, son of Abraham Lincoln. The capital stock of the Pullman Co. is \$54,000,000. By the issuing of 200,000 shares to pay for the Wagner Co., it became \$74,000,000, but it is believed generally that it will be increased to \$100,000,000. The capital of the Wagner Co. was \$20,000,000. One of the conditions believed to have been attached to the consolidation, though not publicly announced, was an agreement by the Pullmans to turn over to the Vanderbilts all their holdings in the Boston & Albany & the Boston & Maine railroads. Such a transfer would help the Vanderbilts in new territory.

Qu'Appelle, Long Lake & Saskatchewan.—Net earnings Nov. '99, \$6,414.96, against \$3,475.75 in Nov. '98.

Quebec Central.—Gross earnings for Nov. \$38,801.53, against \$33,756.83 in Nov. '98. Working expenses \$27,517.89, against \$24,148.61. Net earnings \$11,283.64, against \$9,608.22.

Gross earnings 10 mos. to Nov. 30, \$469,127.01, against \$419,611.55. Working expenses \$303,195.19, against \$277,976.82. Net earnings \$165,931.82, against \$141,634.73.

The Quebec & Lake St. John Ry.—Our advices from London, Eng., are to the effect that the bondholders' committee will most likely issue a further circular to the shareholders shortly. J. G. Scott, Manager & Secretary of the Co., has been in London in connection with the Co.'s finances. (Sep., '99, pg. 257).

The Oct., '99, earnings increased \$3,337 over Oct. '98.

United Counties Ry.—There is no further information about the purchase of this line in the interest of the Rutland Ry. Co. The authorized capital of the U.C. Co. is \$100,000 which is said to have been distributed largely for "services," very little having been paid up. The road has not done well, as it runs through a poorly populated district, the Co. has had considerable difficulty in meeting its engagements & a number of suits have been entered against it. The road is bonded to the fullest extent & the 20 miles between Irberville & St. Robert are to be offered for sale by the sheriff at St. Hyacinthe, Jan. 26, under a judgment held by the Sisters of the Precious Blood. (Dec. '99, pg. 346.)

White Pass & Yukon.—The earnings for the week ended Dec. 7 were \$4,100, making from the opening of the line to Dec. 7, \$859,719.

The case of Wilkinson vs. Graves which came up for hearing in the Queen's Bench Division, in London, Eng., the first week in December, before the Lord Chief Justice & a special jury, was an action by C. H. Wilkinson, of London, Eng., to recover from S. H. Graves, member of the firm of Close Bros. & Co., of London & Chicago, damages for alleged libel. It appeared that on May 7, 1898, defendant addressed a letter to E. Midgley which imputed blackmail by plaintiff of Close Bros. & Co. by demanding money by threat in connection with the promotion of a company for the construction of the White Pass & Yukon Ry. Defendant admitted writing the letter complained of, but said his firm was interested with others in the Assets Development Co., Ltd., formed for the purpose of promoting the scheme, & that the letter was privileged & justifiable & written without malice in the belief that it was true. After hearing addresses of counsel, his Lordship summed up remarking that it was a striking fact that plaintiff, who was at the head of a big financial scheme, was an undischarged bankrupt, having incurred debts to the extent of £75,000, while the assets were only £10, & the trustees in bankruptcy were certain not to realize a single penny. Under the protection of enormous privileges powers were exercised which were a public scandal, & a scandal which suggested that the law in respect to the formation of public companies should not be allowed to continue as it is. He had ruled at the close of the case, & he repeated the ruling, that the occasion upon which the words complained of were used was a privileged occasion, & that in itself put an end to the case, unless the jury were of opinion that at the time defendant wrote the letter he was actuated by express malice, which alone would deprive defendant of his protection of privilege. The jury, without leaving the box, returned a verdict for defendant, and judgment was entered for him with costs.

Duluth, South Shore & Atlantic.

In New York, Dec. 6, Judge Wheeler, of the U.S. Circuit Court, filed a decision overruling the demurrer entered by the defendant in the suit brought by J. E. Berwynd, of New York, as a stockholder of the North Star Construction Co., of New Jersey, against the C. P. R. Co., for an accounting & the payment into court of the securities of the Construction Co., the owner & builder of the Duluth & Winnipeg Ry., the owner of the stock of the Duluth & Winnipeg Terminal Co., & the North Star Iron Co., which were secured by the C. P. R. Co. as collateral security through a transaction between President Foley of the Construction Co., & President Van Horne of the C. P. R. The securities were obtained by President Foley in lieu of a debt of \$600,000, which was owed to him by the Construction Co. Berwynd, in his bill of complaint, alleges that the C. P. R. Co. changed the name of the Duluth & Winnipeg R.R. to the Duluth, South

Shore & Atlantic R.R., & disposed of it & the securities of other corporations obtained from President Foley at much below the market value, & says: "They were sold & bid in for much less than the amount of the debts on which they were pledged & that the Duluth railroad was conclusively foreclosed."

The C. P. R., in entering the demurrer, assigned want of jurisdiction in equity & want of ground for relief. Judge Wheeler in his decision says: "The jurisdiction of the parties seems to be well shown & the bill does not allege with much verbiage many conclusions of law, which, as argued for the defendant, do not of themselves afford ground for relief, but when they are supported by allegations of fact the conclusions of law do not take away the effect of these allegations. Enough of fact is set forth to show, if true, that the C. P. Railway Co. obtained control of the assets of the Construction Co. in such a manner as to be accountable for their management, disposition & avails, which the forms of corporate action & of legal proceedings conclusively taken in the interests of the C. P. R. Co., as alleged, do not take away. In this view the demurrer cannot be sustained, but must be overruled. Defendants must file answer by Jan. rule day."

Berwynd says that he owns \$25,000 stock of the North Star Construction Co., & that he filed the bill of complaint in behalf of himself & all others similarly situated who may come in the suit.

Temiscouata Railway Case.

In the Chancery Division in London, Eng., Dec. 12 & 13, Mr. Justice Farwell had before him the case of the Trustees, Executors, & Securities Insurance Corporation, Ltd., v. Armstrong. This was an action to obtain the repayment by W. C. H. Armstrong, of £42,000 trust money obtained by alleged misrepresentation.

Mr. Eady, Q.C., for plaintiffs, stated that defendant, under the name of Armstrong & Co., was the London agent of the Temiscouata Ry., of which the plaintiffs held £50,000 bonds, which they were empowered to dispose of on certain conditions. The charge against the defendant was a very serious one, it being alleged that he had secured the selling of the £50,000 bonds by what the plaintiffs said was a false & fraudulent misrepresentation. There had been an issue of £274,000 bonds in Mar., 1889, & the £50,000 in question formed the balance of the total issue of £324,000. This first issue was not very well subscribed for by the public, but the bonds were taken up by defendant & the underwriters, & it was alleged that defendant obtained the new issue of the bonds with the object of passing off the old bonds in place of the new, a scheme being devised for the purpose of deceiving the Stock Exchange, & of dealing with the old bonds as if they were the new issue. In this scheme the defendant, it was said, was joined by the Vice-President (the late Hector Cameron) of the Temiscouata Ry. Plaintiffs could prove these dealings in the bonds by a series of letters, but counsel's first object was to show that the £50,000 worth of bonds had been obtained by a misrepresentation. These bonds were held on trust by plaintiffs only to be used for the building of sidings, rolling stock & light works in connection with the main line. The defendant was anxious to get the issue of these bonds in order to enable him to get rid of the old ones. It was therefore arranged that the railway company should apply to have the £50,000 released for the building of a new siding, while the money was, in fact, to build a branch line which had already been separately bonded. Defendant had been advised by the railway company's solicitors that the money could not be obtained legally for constructing a branch line, & thereupon defend-

ant wrote to the railway company advising it to call the branch line a siding. This was done, & owing to the misrepresentation the bonds were handed over to defendant. Counsel proceeded to read a mass of correspondence & other documents to show the nature of the defendant's dealings on the Stock Exchange for the purpose of preparing a market for the issue of the bonds. The correspondence, which extended over a considerable period, was chiefly addressed to Hector Cameron, to whom Armstrong detailed his efforts to keep up the market throughout that period. At length defendant suggested that nothing could be done except they were helped in the issuing of the £50,000, & incidentally defendant stated that "the London Press in every instance had refused to publish our carefully prepared articles about the railway." In another communication defendant promised to arrange to have the issue over applied for, & said that there was nothing to prevent "palming off" the old bonds for the new ones. In the end the Vice-President of the company consented to defendant's scheme as the best possible plan for getting rid of the old bonds.

In the course of counsel's statement Sir Edward Clarke, for defendant, said that his case was that although the branch in question might have become a portion of the line at the time it was proposed and that the bonds were issued, it was really built for a siding. It could not be suggested that there was any attempt to deceive.

Mr. Eady said his Lordship had expressed a wish to know why his clients had sued Mr. Armstrong & not the company. Armstrong was the agent, & in a case of fraud was liable as a principal. No party could be admitted to be excused on the ground that he was an agent. The agent could not shelter himself on the ground he was agent & had paid the

money over to his principal. He had obtained the payment of this trust money by fraud, & was as much a principal as the company. What he understood Sir Edward Clarke to say was that although that portion of the railway had, in fact, become part of the branch, & had been bonded as such, it was constructed as a siding.

Mr. Vernon said that he did not think Sir Edward Clarke said that, because it was part of defendant's case that it was part of the main line.

Mr. Eady said in the view of the trustees there was a main line & a siding & a branch line, but a little later they wanted to know whether the siding had been built on the land in the trustees' conveyance, but they had received an unsatisfactory reply.

Justice Farwell said that if the plans were not admitted he would have to adjourn the case.

Mr. Warmington, Q.C., said that he did not know whether the plans were proper evidence.

Justice Farwell said that if it should turn out that Mr. Eady's plan was delusive, he would consider the costs of the adjournment in that connection. The case had better stand over until the properly certified plans were obtained, & then the case could be restored to the list.—Canadian Gazette.

Steel Ties.—It is said the use of steel ties for experimental purposes on the New York Central R.R. has not given satisfactory results. They are durable, but hard to line; the ballast shakes away from them, & they give a rattling sound from the stone ballast & from the bolts, which is disagreeable to passengers. Some have proved to be so unsatisfactory that they are being replaced by oak ties.

C.P.R. Earnings & Expenses.

Gross earnings, working expenses, net profits and increases over 1898, from Jan. 1, 1899.

Earnings.	Expenses.	Net Profits.	Increase.
Jan..\$1,864,570.36	\$1,247,036.50	\$ 617,533.86	\$101,906.27
Feb..1,753,382.82	1,153,681.34	599,701.48	176,034.18
Mar..2,109,667.58	1,280,772.01	828,895.57	75,662.06
Apr..2,196,312.40	1,276,008.91	920,303.49	203,212.80
May..2,402,151.29	1,369,392.68	1,032,758.61	100,006.30
June..2,362,278.67	1,339,218.47	1,023,060.20	205,664.83
July..2,385,625.47	1,412,663.84	972,961.63	242,272.84
Aug..2,474,036.85	1,455,205.13	1,018,831.72	135,804.84
Sept..2,649,785.37	1,502,899.82	1,146,885.55	54,371.89
Oct..3,084,604.55	1,673,588.61	1,411,015.94	155,170.45
Nov..2,977,403.63	1,635,167.81	1,282,235.82	201,727.02

\$26,259,819.05 \$15,405,635.12 \$10,854,183.93 \$1,657,923.42

Approximate earnings for Dec., \$2,934,000, against \$2,638,000 in Dec., 1898; increase, \$296,000.

SUBSIDIARY LINES.

DULUTH, SOUTH SHORE & ATLANTIC.—Approximate earnings for Dec., \$206,476; increase over Dec., 1898, \$73,032.

Net earnings for 10 months to Oct. 30: \$772,803, as against \$493,714 for corresponding period.

MINERAL RANGE, HANCOCK & CALUMET.—Approximate earnings for Dec., \$46,199; increase over Dec., 1898, \$13,504.

MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE.—Approximate earnings for Dec., \$420,742; increase over Dec., 1898, \$51,129.

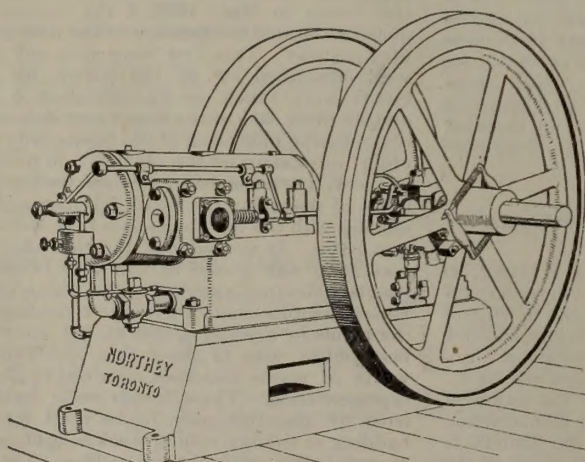
Net earnings for 3 months to Sep. 30, \$689,672, against \$496,572 for corresponding period.

Grand Trunk Earnings, Expenses, &c.

The following statement of earnings supplied from the Montreal office, includes the G.T. of Canada, the Chicago & G.T., & the Detroit, Grand Haven & Milwaukee Rys.:

The Northey Gas or Gasoline Engine.

In Connection with Pumping Machinery for Tank Duty.



"BUILT FOR HARD WORK."

Railway Officials will find the Northey Engine to be a marked improvement over steam or other forms of power for this duty. It is simple of construction, and easily managed, necessitating only the turn of a fly-wheel to start, while it can be going at full speed in a few seconds and be shut down on the instant. Needs no engineer to look after it, the station hands can do all that is required, while it will run for hours at a time with little or no attention. The Engine is compactly built and of the best materials; it uses either gas or gasoline for fuel, and its safety and economy with either have proved it to be the most satisfactory power in the market.

We will cheerfully send Booklet and every information upon request.

The Northey Mfg. Co., Limited, 1032 KING ST. SUBWAY, **Toronto, Ont.**

	1899	1898	Increase	Decrease
Jan....	\$ 1,956,281	\$ 1,916,332	\$ 39,949	.....
Feb....	1,824,434	1,674,453	149,981	.....
Mar....	2,186,359	2,048,359	137,389	.....
April....	1,912,543	1,918,477	24,066	.....
May....	2,039,239	1,940,580	98,259	.....
June....	2,062,137	1,880,402	181,735	.....
July....	2,105,403	1,860,884	244,519	.....
Aug....	2,391,559	2,002,802	388,757	.....
Sept....	2,488,829	2,261,148	227,681	.....
Oct....	2,500,581	2,260,573	240,008	.....
Nov....	2,426,992	2,190,079	236,913	.....
Dec....	2,434,194	2,176,940	257,254	.....
	\$26,338,551	\$24,132,040	\$2,226,511	.....

The following figures are issued from the London, Eng., office:

GRAND TRUNK RAILWAY.

Revenue statement for Oct., 1899:

	1899	1898	Increase	Decrease
Gross receipts....	£424,400	£382,258	£42,142	.....
Working expenses.	262,500	237,759	24,741	.....
Net profit.....	£161,900	£144,499	£17,401	.....

Aggregate July 1 to Oct. 31, 1899:

	1899	1898	Increase	Decrease
Gross receipts....	£1,604,647	£1,407,861	£196,786	.....
Working expenses	1,012,515	892,316	120,199	.....
Net profit.....	£592,132	£515,545	£76,587	.....

CHICAGO AND GRAND TRUNK RAILWAY.

Revenue statement for Oct., 1899:

	1899	1898	Increase	Decrease
Gross receipts....	£70,300	£63,674	£6,626	.....
Working expenses.	65,100	54,018	11,082	.....
Net profit.....	£5,200	£9,656	.....	£4,456

Aggregate July 1 to Oct. 31, 1899:

	1899	1898	Increase	Decrease
Gross receipts....	£257,955	£238,877	£19,078	.....
Working expenses.	224,572	196,653	27,919	.....
Net profit.....	£33,383	£42,224	.....	£8,841

DETROIT, GRAND HAVEN AND MILWAUKEE RY.

Revenue statement for Oct., 1899:

	1899	1898	Increase	Decrease
Gross receipts....	£19,000	£18,567	£433	.....
Working expenses.	11,300	13,039	.....	1,739
Net profit.....	£7,700	£5,508	£2,192	.....

Aggregate July 1 to Oct. 31, 1899:

	1899	1898	Increase	Decrease
Gross receipts....	£80,304	£74,228	£6,076	.....
Working expenses..	50,311	51,469	.....	1,158
Net profit.....	£29,993	£22,759	£7,234	.....

DETAILS OF G.T.R. RECEIPTS JULY 1 TO NOV. 30.

	1899.	1898.
Passengers, number.....	3,215,275	3,273,880
amount.....	£ 582,306	£ 495,111
Immigrants, number.....	5,021	6,315
amount.....	£ 4,473	£ 3,582
Mails, express, &c.....	£ 92,917	£ 87,842
Freight, tons.....	4,466,282	3,905,617
amount.....	£ 1,282,338	£ 1,141,784
Miscellaneous receipts.....	£ 55,480	£ 52,909
Total receipts.....	£ 2,017,514	£ 1,781,228
Increase.....	£ 236,286	.....

TRAFFIC RECEIPTS OF THE SYSTEM.

Traffic receipts, July 1 to Nov. 30.

	1899.	1898.	Increase.	Decrease.
Grand Trunk....	£2,017,514	£1,781,229	£236,285	.....
Chicago & G.T....	325,180	298,084	26,196	.....
D., G. H. & M....	99,144	90,778	8,366	.....
Total.....	£2,441,838	£2,170,991	£270,847	.....

Chicago & Grand Trunk Finances.

In our issue of Nov. '99, pg. 318, we gave very full particulars of the scheme proposed for the reorganization of this Co. Subsequent to the issue of President Hays' circular to the 1st & 2nd mortgage bondholders, which we reproduced, he issued the following notice:—"It having come to the knowledge of the C. & G.T.R. Co. that many holders of 1st mortgage bonds are under the impression that if they do not deposit their bonds with Glyn, Mills, Currie & Co., on behalf of the trustees, in favor of the scheme of reorganization, they will be paid off in cash on Jan. 1, 1900, notice is given that there are no funds available for the purpose, & that the bonds cannot be paid. Bondholders are, therefore, urgently recommended to deposit their bonds without delay,

for which purpose the time for deposit has been further extended until Jan. 1, 1900.

A. Keyser & Co. recently wrote the London, Eng., press:—"With reference to the announcement that the C. & G.T.R. Co. will default on its 1st mortgage bonds due Jan. 1, next, we beg to invite holders to communicate with us with a view to the formation of a committee for enforcing their rights." They also announced having arranged with their New York correspondents, Simon Borg & Co., to represent them & all other bondholders who might join them in enforcing their rights. They requested all holders to deposit their bonds under a bondholder's protective agreement with Martin's Bank, Ltd., who would issue negotiable certificates for the same.

A Detroit, Mich., despatch of Jan. 4 says:—"Judge Swan of the U. S. Circuit Court yesterday appointed E. W. Meddaugh & H. B. Joy of this city receivers of the entire system of the C. & G.T.R. Co. extending from Port Huron to Chicago. The appointment of the receivers is the result of a bill filed by the Mercantile Trust Co. of New York, trustees, to foreclose the senior mortgage of the C. & G.T.R. Co. for the principal of the bond debt of the Co. in the sum of \$6,000,000, which matured Jan. 1. The Co. is understood to be badly insolvent. This mortgage was made some 20 years ago, & a 2nd mortgage followed 2 years later, which was also for \$6,000,000. It is understood that, with the exception of one or two years, the Co. has never earned a sufficient surplus over operating expenses to pay the interest on its mortgage debt since the 1st mortgage was made, & that it would long since have gone into insolvency but for contributions to the interest by the G.T.R. Co. of Canada, which contributions have been under traffic agreements that limit the obligation of the latter Co. to such interest.

"A scheme of liquidation & reorganization has been submitted by the Co. to the bondholders, & a majority of the bonds under each mortgage have been deposited with the trustees appointed for that purpose. The scheme is to create a new mortgage to secure an issue of bonds for \$15,000,000 at 4% interest, payable semi-annually, to exchange these bonds for the 1st mortgage bonds, dollar for dollar, & for the 2nd mortgage bonds at 75c. on the dollar, & to issue the remainder of the bonds for capital to double-track the line, improve its alignment, etc.

"The G.T.R. Co. is a large shareholder & creditor of the C. & G.T.R. Co., & in consideration of the scaling down of the interest & reduction of the principal of the 2nd mortgage, has signified its willingness to enter into agreements which practically guarantee the interest on the proposed new bond issue. It is expected that the receivership will not continue longer than the period required for a sale of the defendant Co.'s property under the foreclosure proceedings, as the terms proposed to the bondholders are considered just & under the conditions, liberal.

"Receiver Meddaugh believes the expensive terminal in Chicago was to a considerable extent responsible for the Co.'s financial disability."

In connection with the receivership a number of circulars were issued on Jan. 3.

President Hays notified all officials, etc., of the C. & G.T.R. Co., including those of the Cincinnati, Saginaw & Mackinaw R.R. Co., that Messrs. Meddaugh & Joy had been appointed receivers of the railway & property of the C. & G.T.R. Co., & having formally demanded possession thereof, possession had been surrendered. Mr. Meddaugh is General Counsel for the G.T.R. system at Detroit. Mr. Joy is a capitalist of that city.

The receivers gave notice of having taken charge of the property, instructed employees to continue in the same duties as heretofore, as agents of the receivers, & stated that existing arrangements would as far as practicable

be maintained, that the orders of the Court provided for & fully secured the payment of outstanding indebtedness for labor & supplies, & that any legal action or expense incurred by holders of such claims would be superfluous. Pending the issue of new forms employees were instructed to write on the heading of all forms used the names of the receivers above the name of the Co.

The receivers made the following appointments: W. Cotter, heretofore Superintendent of the Western division of the G.T.R. system at Detroit, to be Superintendent; J. H. Muir, heretofore Treasurer G.T.R. lines west of Detroit & St. Clair Rivers, at Detroit, to be Auditor & Treasurer; D. Brown, heretofore First Assistant General Freight Agent of the G.T.R. at Chicago, to be General Freight Agent; G. T. Bell, heretofore First Assistant General Passenger & Ticket Agent of the G.T.R. at Chicago, to be General Passenger & Ticket Agent; J. E. Muhlfield, heretofore Master Mechanic of the G. T. R. at Port Huron, to be Master Mechanic; J. Hodgson, heretofore Master Car Builder of the G.T.R. at Port Huron, to be Master Car Builder.

The receivers gave notice that Auditor & Treasurer Muir would receive & dispose of monies for their account, & that agents, conductors & others would make their remittances under his instructions.

Auditor & Treasurer Muir notified agents of the C. & G.T.R. & of the C.S. & M.R.R. to remit their daily receipts to the receivers, care of the Commercial National Bank of Detroit, & to send advices of same to him instead of to Montreal, & conductors were notified to send reports of cash, fares & tickets to him instead of to Montreal.

Railway & steamboat companies are requested to continue to report to the G.T.R. system tickets sold over the C. & G.T.R., & the C.S. & M.R.R. That system will report tickets sold on those railways over other lines. They are also requested to continue to report the mileage of the C. & G.T.R. & the C.S. & M.R.R. cars on their lines to that system in the same manner as heretofore, stating separately the mileage for Jan. 1 & 2. That system will report mileage of foreign cars on the lines named. Balances due for tickets & car mileage will continue to be collected & paid by that system with its own balances. That system will also deal with through freight claims for the C. & G.T.Ry.

Canadian Pacific Railway Land Sales.

	Acres.	1899	Amount.	1898
Jan....	14,718	22,044	\$ 46,411.35	\$ 72,924.83
Feb....	13,747	20,650	43,371.00	66,399.00
Mar....	24,045	33,421	74,430.00	109,010.00
April....	36,626	43,145	116,835.00	140,276.00
May....	39,573	43,148	123,862.00	137,835.00
June....	54,225	49,203	169,234.00	160,200.00
July....	47,402	39,511	149,546.00	123,010.00
Aug....	35,214	19,448	110,705.00	63,911.00
Sept....	25,517	18,007	83,719.70	55,936.43
Oct....	30,473	17,026	99,429.09	55,570.67
Nov....	42,633	25,979	140,491.39	82,918.64
Dec....	52,255	17,039	164,762.38	54,703.01
	416,428	348,612	\$1,324,796.91	\$1,123,694.58

Last year's land business was the largest in the history of the Co. In addition to the above figures the Canada Northwest Land Co.'s sales for 1899 are approximated at 83,000 acres, the proceeds of which will total \$445,000. In 1898 the C.N.W.L. Co. sold 71,000 acres for \$383,000. Its business is now administered in connection with the C.P.R. Land Department.

When the sales of townsites in which the C.P.R. Co. is interested, & farm lands in B.C. handled in the Winnipeg office, are taken into consideration, the gross business done by the Co.'s Land Department will total closely on \$2,000,000.

In reference to the phenomenal increase, Land Commissioner Hamilton says:—"The opening of the new branch lines in Manitoba

enabled us to sell considerable land around the McGregor & Waskada districts. The extension of the Pipestone branch has also caused a great many home-seekers to make extensive purchases. Increased immigration from the better classes in the U.S. also helped to increase sales."

Grand Trunk Betterments, Etc.

Rapid progress is reported as being made with the steel work for the general office building on McGill st., Montreal, & the erection of this part of the work is expected to be commenced in Feb. The stone work will probably be resumed in April. (Nov., '99, pg. 322.)

The ratepayers of Meaford, Ont., have passed a by-law granting bonuses amounting to \$56,000. Of this \$31,000 is to be given to the G.T.R. to divert its line so as to connect with the harbor at Meaford, & to erect station & other buildings for the transaction of all its business at that town in connection with the harbor & with an elevator to be erected there. The remaining \$25,000 is to be given to the Botsford-Jenks Co., of Port Huron, Mich., to erect at Meaford an elevator to cost not less than \$100,000 & with a storage capacity of, at least, 600,000 bush.

Capt. Marsh, of the Lake of Bays Navigation Co., Huntsville, Muskoka, was recently reported to be endeavoring to induce the G.T.R. management to build about a mile of railway over the strip of land dividing Peninsular Lake & Lake of Bays. We are informed that there is no immediate intention on the part of the Co. to undertake the work.

Piles have been driven along the embankment at the west end of the bridge at Brantford, which was threatened with a wash-out last spring. This, and a stone facing, are expected to keep the river within bounds.

Arrangements are said to have been completed by which the Co.'s old shops in Brantford will be utilized as malleable iron works by the Pratt & Letchworth Co.

C.P.R. Betterments, Construction, Etc.

Ontario & Quebec Division.—J. W. Leonard, who was the first general superintendent to get betterment appropriations for 1900, secured them to the extent of \$200,000 just before Christmas. Considerable ballasting will be done between Montreal & Toronto, & between Chatham & Windsor. The employment of heavier power, which means longer trains, has necessitated the lengthening of

sidings, & \$20,000 will be spent on them between Montreal & Toronto.

At Smith's Falls, divisional offices, to cost \$6,000, will be built. The tea storehouses for the accommodation of the tea trade from the Orient, are situated at Smith's Falls, & it has become necessary to increase them. Their present capacity will be doubled at a cost of \$11,000. For this work the yards at the Falls will be re-arranged.

During 1899 some \$26,000 was spent on straightening the line between Havelock & Toronto. The present appropriations include \$40,000 more for this work, much of it is rock work, & will be proceeded with at once.

In Toronto the freight shed room will be more than doubled by the erection on the water side of the present sheds, between York & John streets, & parallel to them, of sheds 40 by 150 ft.

It is contemplated to provide large coal storage bunks at Toronto Jct. to guard against any possibility of a shortage of fuel. The terminal yards at Toronto Jct. will be increased from 1,100 to 1,600 cars capacity, & an additional stores building will be erected. There also are expenses consequent upon increased business. A 65-ft. turn-table is to be built to accommodate the larger locomotives now in use.

The grade between Orangeville & Orangeville Jct. will be cut at an outlay of \$6,000. At present the engines will haul 1,100 tons from Flesherton to Orangeville Jct., & only 800 over the grade. The grade will be cut so that the larger load may be taken through to Orangeville.

The business at Owen Sound has increased enormously, & to keep pace with it the loading facilities at the docks & yards will be increased 400%, & the storage capacity for flour 25%. The cost will be \$30,000. This work will be gone on with at once so that it may be completed by the opening of navigation.

Mr. Leonard speaks of his \$200,000 appropriation as "a preliminary canter," which may be added to as the year advances.

Perth Car Shops.—We are informed by an official that there is no truth in the report that these shops are to be removed to Toronto Jct. next spring.

Canal Between Georgian Bay & Lake Nipissing.—The Ottawa rumor factory credits the C.P.R. with the intention of constructing a canal with 20 ft. of water up the French River, from the Georgian Bay to Lake Nipissing, & of building elevators at North Bay. The distance from Lake Nipissing to the mouth of the French River is 69 miles, & there

is said to be a rise of 61 ft. divided among 7 or 8 falls or rapids, the intervening stretches of river being wide & deep.

Western Division.—A large amount of work was done during 1899. In addition to the usual ballasting, filling of bridges, & other general betterments along the line, the wooden structures over the Brokenhead & Whitemouth rivers have been replaced by masonry & steel girders, & a 44 ft. stone arch has been erected over the mill race at Keewatin. The divisional point has been removed from Manitou to La Riviere, where a two-storey round house has been erected, also coal chutes of a unique design. The Stonewall branch extension to Teulon has been surfaced & lined. A handsome stone station & a freight house has been erected at Virden. At Moose Jaw the station & hotel have been completed, coal pockets have been erected & a station yard has been built. Coal pockets have also been erected at Maple Creek & Bassano. Gleichen & Canmore have been closed as divisional points & a divisional point has been established at Calgary, where a running shed & coal pockets have been erected, & a large yard has been provided. Masonry abutments have been put in under the span at the second crossing of the Bow River, & the approaches have been filled. The wooden trestle over Sunshine Creek has been replaced by masonry & steel. In addition to the above mentioned work a large amount of construction has been done, including the Snowflake branch, 16½ miles; the Deloraine Waskada branch, 18 miles; grading on the branch from McGregor to Varcoe, & the extension of the Pipestone branch, all of which we have referred to from time to time & some later details of which are given below.

Fort William.—A 20-stall engine shed has been built. The yard has been rearranged, increasing its capacity about 50%, & leads have been provided so that switching can be done without one engine interfering with another. (Dec., '99, pg. 349.)

Fort William to Winnipeg.—The surveys for the double tracking of this portion of the main line, which were carried on last season by Division Engineer Busted under the supervision of H. D. Lumsden, C.E., have been completed between Fort William & Dexter, 54 miles, & between Eagle River & Rennie, 118 miles. For several years past, in the renewal of bridges the abutments have been built for double track, also all permanent culverts. Last year sidings at 22 stations were lengthened to 4,000 ft. each, & so placed as to form part of the second track. Between Gonor & Louise Bridge, Winnipeg, about 23

MICA BOILER COVERING

For Locomotive, Marine and Stationary Boilers

Tested by Mechanical Experts of the C.P.Ry. Co., G.T.Ry. Co., M.C.Ry. Co., Boiler Inspection Insurance Co., and proved to be the

= = Best of All Non-Conductors = =

All Steam users should see the Mica Boiler and Pipe Covering—Flexible, Durable and Highest non-Conductor of Heat in the Market.

Full particulars, reports of trials, testimonials, prices, etc., from

Mica Boiler Covering Co., Limited, Montreal, Toronto and London, Eng.

miles, have been laid with 73 lbs. steel. (Dec., '99, pg. 349.)

Rat Portage.—A large amount of work was done at Rat Portage during 1899, including the erection of an improved passenger station, a 20 stall locomotive shed, coal pockets, water tank, ice house & stores building. The freight shed has been transferred to a more convenient location, warehouse sites have been provided, & rock cuttings at the east & west ends of the yards have been removed, & the capacity of the yard has been increased 100%. (Nov., '99, pg. 324.)

The Bonnet Lake Branch, from the main line at Molson, 45 miles east of Winnipeg, had been graded from the main line about 4½ miles up to Dec. 15. Grading is still being carried on by station work in some of the muskegs. The whole of the branch, some 22 or 23 miles, has been located, but an attempt is being made to change the location of the northerly 12 miles, to improve the grades & slightly reduce the distance. The terminus will be at the clay banks on Bonnet Lake. A little track may be laid this winter, & it is expected to have the branch completed by June. Its object is to develop the clay, mineral & forest products along its route, besides which it will afford a picturesque camping ground for Winnipegers who wish to spend the summer out of the city. (Dec., '99, pg. 349.)

Winnipeg Terminals.—During 1899 a quarter section was added to the running shed & a half section to the freight car repair shop. Some additional sidings were put down in the yard & a macadamized team track road was laid to facilitate handling of freight.

On Jan. 2 we were officially informed that the plans for the hotel & station had not been definitely decided on. (Dec., '99, pg. 349.)

Snowflake Branch.—A regular passenger train service was inaugurated Dec. 15, when two mixed trains were put on, running west bound on Mondays & Fridays, & east bound on Tuesdays & Saturdays, connecting with the Pembina section passenger trains in both directions. (Dec., '99, pg. 349.)

The Deloraine Waskada branch has been given a precisely similar service to the Snowflake branch. (Dec., '99, pg. 349.)

Pipestone Branch Extension.—Up to the end of Dec. grading had been completed to about 25 miles west of Antler, & track had been laid to about 14 miles west of Antler. It was then the intention to continue track-laying as long as favorable weather lasted, & it was hoped to complete the extension to Carlyle before stopping track-laying. (Dec., '99, pg. 349.)

Crow's Nest Pass Ry. A large amount of work was done during 1899 under the supervision of M. H. Macleod, C.E., in sloping cuts, ballasting the line throughout, & in putting in concrete piers at stream crossings. The line is now in excellent shape. (Dec., '99, pg. 349.)

The press report crediting the Co. with the intention of building a branch from Bruce's Point, on the C.N.P. line, to Golden, is evidently incorrect. We are officially informed that there is no such place as Bruce's Point on the line.

The tenders submitted for building the section of this line between Five Mile Point, near Nelson, & Balfour on Kootenay Lake, appear not to have been in proper form, & new tenders were therefore invited. It is understood the work will be carried out under the super-

intendence of W. F. Tye, C.E., who is also Manager of Construction of the C. & W. extension between West Robson & Midway. (Dec., '99, pg. 349.)

The ratepayers of Nelson have passed a by-law making arrangements with the Co. in connection with the establishment of a divisional point there. For a long time past the accommodation at Nelson has been totally inadequate to the extent of business done, & its enlargement was delayed waiting a decision as to whether or not Nelson would be the divisional point. Now that this has been decided on plans have been prepared, with estimates of the cost of the work, & as soon as these receive the authority of the Executive, the improvements will be proceeded with. (Dec., '99, p. 350.)

The North Star Mine Branch, from the Crow's Nest Pass Ry., is expected to be completed & ready for traffic by Jan. 25. The North Star Mining Co. will be ready to ship ore about that date, or shortly afterwards. (Nov., pg. 325.)

A Slocan Branch.—A Slocan City correspondent writes:—"There is a prospect of the C.P.R. building a branch line from here up the mountains to tap the many rich properties now being opened up on Ten Mile, Springer & Lemon Creeks. C. E. Perry, C.E., is now looking over the ground, & it is likely a staff of surveyors will be put to work shortly."



CANADIAN PACIFIC RAILWAY STATION AND HOTEL, MOOSE JAW, ASSA.

Columbia & Western Ry.—A Midway correspondent, writing late in Dec., stated that C.P.R. officials had given an assurance that the track would be laid from Greenwood to Midway early in the new year & that the station & side tracks would be completed by April. (Dec., '99, pg. 350.)

In the middle of Dec. about 200 representatives of the Boards of Trade of Victoria, Vancouver, New Westminster & Kootenay towns, with press representatives, were taken by the Co. on a complimentary trip over the C. & W. extension.

Duluth, South Shore & Atlantic. A heavy nor'easter, on Dec. 13, washed out 1,000 ft. of the track near Mission, on Keewawan Bay. The early passenger train passed in safety, but a freight following, made up of an engine & 10 loaded cars, went into the lake. There were no fatalities.

Mineral Range Ry.—Our impression, as stated in our last issue, that the reference to this Co.'s extension in one of our contemporaries was in error as to mileage turns out to have been correct. We are officially informed that the Grosse Point extension from Arcadian Jct. to Arcadian mill is 9.47, & the branch to the Arcadian mine is 2 miles, a total of 11.47 miles. (Dec., '99, pg. 351.)

Minneapolis, St. Paul, & Sault Ste. Marie.—President Lowry & General Manager Pennington, of this line, were in Montreal recent-

ly in consultation with President Shaughnessy, of the C.P.R. It is said that a number of extensions of the "Soo" lines are contemplated, which will probably be commenced early in the spring. They will be mostly in Northern Dakota, where the Northern Pacific will invade "Soo" territory, & where the latter road will take steps to retaliate upon the N.P. The business men of Fargo, N.D., have made a proposition to the "Soo" line to extend north about 60 miles to that city.

The Minneapolis city council has granted the "Soo" road important & valuable terminal facilities in Minneapolis. The road has acquired all the private property necessary, & now the avenues from Sixth to Tenth avenues, north, between Second & Washington avenues, are vacated. Extensive trackage & freight facilities will be constructed.

Surveys, Construction, Betterment, &c.

Algoma Central.—A statement furnished by the management gives 24 miles as being operated, & 40 miles under construction. (Nov., '99, pg. 325.)

Bellingham Bay & British Columbia.—It is said contracts are about to be let for an extension from Sumas, Wash., on the International boundary, to Boulder, 16½ miles.

Buffalo, N.Y., Union Station.—The Common Council has approved a proposition to grant the Hamburg canal property in Buffalo to M. J. Burke, in consideration of his agreeing to erect thereon a Union Station, at a cost of not less than \$1,500,000, & to allow the station to be used for passenger traffic by all railway companies now or hereafter running into Buffalo, without discrimination, & upon fair & equitable terms. The site upon which the station is to be built is bounded by Main, Washington & Scott streets, & the lands of the N.Y. Central R.R. The station must be ready for occupation within two years after the formal transfer of the property takes place.

Canada Atlantic.—The new freight buildings & offices at Ottawa are almost ready for occupation. The work of trestle filling along the line is progressing rapidly, the only trestles that are not filled being the Arnprior & Nepean ones. A station is being built at Golden Lake. A number of improvements will be made at Depot Harbor during the winter. It is proposed to considerably extend the yards & to add to the docks, thus providing greater wharfage capacity than is available at present.

Canadian Northern.—On Jan. 2 we were officially informed that track had been laid to 64 miles northwest of Cowan, which was the terminus in 1898. The extension is now 11 miles north of Birch River & within a few miles of Bell River. It was expected that track laying would have to be stopped in a few days thereafter, owing to weather conditions.

On the Gilbert Plains branch from Dauphin, 7 miles of track had been laid & it was doubtful if the balance of the grading would be laid before spring.

An addition is being built to the round house at Dauphin to be used as a repair shop. (Dec., '99, pg. 351.)

Canso & Louisburg.—We are informed that good progress is being made with the location surveys. A staff has been at work recently sounding & boring the bottom of the

River Inhabitants, at McCarthy's Ferry, for the foundation of a bridge there. Tenders have been asked for the construction & equipment of the line from the Strait of Canso to Louisburg, with a branch from the main line to Arichat, construction on the first section of 30 miles from the Strait to St. Peters to be commenced early in Feb. The bridge over River Inhabitants will be about 800 ft. long, with 2 centre spans of 200 ft. each, & will be the largest bridge on the main line. The next at St. Peters will be a drawbridge 100 ft. span.

The line as projected from Port Hawkesbury to Louisburg will be about 86 miles long. We are informed that there is no connection between it & the Cape Breton Extension Ry. scheme, & that the Vanderbilt interests have nothing to do with it. Louisburg is the most easterly port in N.S., & is said to have a well sheltered harbor, which does not freeze over in winter. A gentleman connected with the project has furnished the following information:—"In connection with the railway project, a fleet of ocean greyhounds, equaling in speed such ships as the Oceanic & the Kaiser Wilhelm de Grosse, is to be put into service between the Nova Scotia ports & Liverpool. The distance from Louisburg to Liverpool is given as 2,240 miles. Steamers of the speed of the vessels mentioned could cover the route in about four days, & the railway run to New York would be covered in about 40 hours, while Boston could be reached in about 24 hours, or five days from Liverpool. If mail can be landed in Boston in five days from Liverpool it follows that passengers will be attracted by this route. The best time from Liverpool to Boston now is seven days. Boston receives most of her European mail via New York, & most of it is despatched that way. The consequent rehandling of mail at New York causes a delay of several hours. From Port Hawkesbury connection will be made via the Intercolonial Ry. with St. John, & thence by the C.P.R. & the Maine Central to New England points & to New York."

A Cape Breton paper thinks the railway will secure good local traffic, as some of the best fishing villages will be served by it, & it is anticipated that fresh fish establishments will be started on the opening of the line. It will traverse a number of good agricultural districts, & there are excellent prospects along the route for coal, iron, & manganese. (Nov., '99, pg. 325.)

Central Ontario.—In reference to the extension of this line from Ormsby, 5 miles from

the northern terminus at Coe Hill, to Bancroft, about 21 miles, we are unofficially informed that the contractor's engineer states that 16 miles have been graded ready for track laying & that rock work will be gone on with throughout the winter. The contract requires the extension completed by Oct. 1 next, but it is expected it will be in operation by June 1. Track laying would have been completed over the first half of the extension before now but for delay in securing ties. (July, '99, pg. 209.)

Coast Ry. of Nova Scotia.—President Robertson has been in Halifax in negotiation with the Provincial Government in regard to the renewal of the contract between the Government & the Co. referring to construction of this line. We are advised that it is expected the negotiations will result successfully & that the necessary arrangements will be completed at a meeting of the Executive Council to be held shortly & previous to the convening of the Legislature.

A press report recently stated that in view of the Nova Scotia Southern Ry. being under construction from New Germany to Shelburne, with the intention of connecting with the Coast Ry. at the latter place, it was not likely that the Coast Ry. would be built beyond Shelburne. We are informed that under the contract with the N.S. Government the Coast Ry. is to be built to Lockport, which is 20 miles beyond Shelburne, & the charter applies to a railway from Yarmouth to Halifax, continuing along the shore entirely; while the N.S.S.Ry. starts at Shelburne running in a westerly direction through the northern part of the counties of Queens & Lunenburg to New Germany on the N.S. Central Railway, with the stated intention to be ultimately extended to Halifax. The Coast Ry. is about to open the extension of its road from East Pubnico to Barrington Passage, a total of 50 miles from Yarmouth or about one quarter of the entire distance to Halifax, which is quite a factor, & gives some degree of hope as to the early completion of the line for the entire distance. (Dec. '99, pg. 351.)

The Cumberland Ry. & Coal Co. has built an up-to-date station at Springhill Mines, N.S.

Esquimalt & Nanaimo.—The extension to Oyster Harbor, B.C., has been completed, also the car ferry slip. (Oct. '99, pg. 294.)

Great Northern of Canada.—A contract has been let for the erection of an elevator on the Louise embankment, near the customs house at Quebec, on a site granted by the Harbor Commissioners. The elevator will be

of 1,000,000 bush. capacity & will be constructed of wood and iron, in the most improved manner, with all modern equipment, & will be operated by electricity. Work is to commence by April 1 & it is hoped to have it completed by Aug. 1. The contractors for the extension of the railway hope to complete their work by the time the elevator is ready. During the past year they laid 60 miles of track, besides grading most of the balance, & there now remains only about 23 miles at intervals to be built in order to form a through line between Quebec & the west, as connection will be made at Hawkesbury with the Canada Atlantic. (Dec., '99, pg. 351.)

Great Northwest Central.—An engine house & stock yards are being erected at the end of the extension to Miniota, Man., which was formerly known as Parkisimo. (Nov., '99, pg. 326.)

Intercolonial.—A recent press despatch stated that work on the new station at Levis, Que., would be commenced almost immediately. On Dec. 29 we were officially informed that nothing had been decided in regard to the matter, which was under consideration by the Department of Railways at Ottawa.

Inverness & Richmond.—The charter of this Co. empowers it to build from some point on the Straits of Canso to Cheticamp, N.S., a distance of about 100 miles, passing through Port Hood, Mabou & Broad Cove on the way. For the present the Co. is confining its operations between Port Hastings & Broad Cove, the object being to reach the coal fields as soon as possible. Work was begun by Mackenzie, Mann & Co. late in July, & by Dec. 1 they had completed the grading & bridging, & laid the steel on 30 miles. This covers the distance between Port Hastings & two miles beyond Port Hood. The grading was only moderately heavy, but hard, keeping up the reputation of Cape Breton material. There are not many structures and none large, the heaviest being Long Point Bridge, 40 ft. span, & the Little Judique of 60 ft. span. Most of the waterways are spanned by structures built of the best English cement concrete with steel superstructures. Work is now being vigorously pushed from Port Hood to Broad Cove & the whole will be opened for traffic by Dec. 1 next, while the part between Port Hastings & Port Hood will be ready for traffic by July 1 next.

The question of terminals has not yet been considered, as the navigation of the straits during the winter months is an import-



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ant factor in determining where it will be best to ship from all the year round. Careful observations will be made this winter to determine the actions of the currents in the ice floating through the straits, & to select as near as possible the point least affected by this ice. The points under observation will probably be Port Hastings, Hawkesbury & Cariboo Cove, immediately south & east of the Straits of Canso.

The land for the first 10 miles from Port Hastings is poor & stony, but from there north it gradually improves until excellent farming land is found between Port Hood & Cheticamp. Sheep farming is largely carried on & with the advent of the railway buyers from Montreal & Boston are already going through the district. As a result of this building of the road to Port Hood the coal mine at that point is now being pumped out, & mining will soon be extensively carried on. There is a fine seam of coal 7 ft. thick now well opened & the samples tested on the locomotives give evidence of its being an excellent steaming coal. (Nov., '99, pg. 326.)

Kent Northern, N.B.—Considerable improvements were made during the past year, a large number of ties being replaced, several miles being laid with new steel & a good deal of ballasting being done.

Manitoba & Southeastern.—It was expected to have track laid to War Road, Minn., 115 miles from Winnipeg, before Christmas, but this was not accomplished, owing to the unfavorable weather. All the grading to War Road is ready for the track, & we were informed on Jan. 2 that it was hoped to complete the tracklaying to that point by the middle of Jan. (Dec., '99, pg. 352.)

A meeting was recently held at Pelan, Minn., comprised of delegates from Roseau & Kitson counties, Minn., & Drayton, N.D., to consider the question of securing an extension of the Minnesota & Manitoba Ry., the subsidiary of the Manitoba & Southeastern, from War Road, Minn., westerly to Drayton on the west bank of the Red River, about 30 miles south of the International Boundary. One of the speakers, C. A. Moody, said he had the personal assurance of Mr. Mackenzie that the road would be built. The meeting unanimously passed a resolution in favor of the building of the line, & of granting free right of way for it. A committee was appointed to wait on Mackenzie, Mann & Co., in connection with the matter.

Northern Pacific.—A survey party has run a line for a proposed extension to Neepawa, Man. (Nov., '99, pg. 327.)

Ontario & Rainy River.—On Jan. 1 the ratepayers of Port Arthur almost unanimously passed a by-law granting the Co. \$50,000 in 4% 30 year debentures, & exempted it for 21 years from general taxation, the Co. agreeing that it, or any company that it may become amalgamated with, will make Port Arthur its Lake Superior terminus, will build a station & general offices between Arthur & Bay streets, will handle its freight traffic within a mile of Arthur St., & will build a round house, work shops, & a grain elevator of 1,000,000 bush. capacity within 1½ miles of Arthur St. The Co. has purchased considerable of the water front necessary for the lake portion of its terminals, & will likely complete the balance very soon.

On Jan. 9 we were informed as follows:—"Track has been laid west from Stanley 18 miles, & 10½ miles have been ballasted. With the exception of two small cuts, which will be finished in a week, 40 miles of grading are ready for the track, which we hope to get laid, & will if weather permits, before closing down for winter. For the next 40 miles grading is being done, & will be continued where practicable all winter, & this will be ready for track early next season."

A Minnesota despatch says that the Minne-

sota & Ontario Bridge Co. has been incorporated with \$300,000 capital to build an International bridge over the Rainy River for this line, that the bridge will be a mile long, will cost \$200,000 & will be completed in a year, & that a bill of authorization is pending in the U.S. Congress.

Pontiac Pacific Jct.—The three miles, which have been completed on the Aylmer-Hull extension from Aylmer to Deschenes, have been approved by the Government inspector. The shareholders have approved of the contract given H. J. Beemer to build the Aylmer-Hull line, 9 miles, & of the issue of \$180,000 bonds as collateral security to him. (Dec., '99, pg. 353.)

Prince Edward Island.—The time for receiving tenders for the construction of about 10 miles of the Murray Harbor branch was extended to Dec. 26, 1899, & no announcement has been made as to what action, if any, has been taken. The section in question is to be completed by Aug. 1 next. (July, '99, pg. 210.)

Midland of Nova Scotia.—Now that this line has been practically completed between Windsor & Truro, with the exception of the bridge over the Schubencadie river, its further extension is being agitated. The Co.'s charter empowers it to continue the line from Truro to Brule, Colchester Co., a harbor on Northumberland Strait, & also from Windsor south to connect with the railways of the Atlantic coast. It is urged that the construction of an extension to Brule would be a great advantage for Prince Edward Island traffic. About the middle of the century what is said to have been most satisfactory & very regular communication was in effect between Charlottetown, P.E.I., & Brule Harbor. From Charlottetown to Halifax by way of Pictou is 170 miles, while by way of Brule it would only be 110 miles, & on the through route to Yarmouth there would be a saving of about 110 miles, provided the Midland is also extended south from Windsor to connect with the line now being built by the N.S. Southern Ry. from New Germany to Shelburne. (Dec., '99, pg. 352.)

Ottawa & New York.—A Cornwall, Ont., despatch of Dec. 16 says: "The Degnon, McLean Co. has closed down its works here for the winter. This year it has built a new pier on the site of the one that collapsed last year. This pier has been sunk by pneumatic caissons to bedrock, some 20 or 30 ft. below the river bottom. The pier, which remained standing under the end of the sole remaining span of the South bridge, has also been taken down & similarly rebuilt. Next spring it is understood that the D. McL. Co. will strengthen the piers of the big cantilever bridge over the North Channel. One of these piers will be reproped with huge blocks of stones, which will protect it against the action of the ice. The other pier will be surrounded with a caisson of steel, which will be filled with concrete. The small pier on the canal bank will be taken down & rebuilt, as the Co. is taking every precaution to make the bridge safe & strong."

The Rutland-Canadian R.R. is being built from Burlington, Vt., to Rouse's Point, N.Y., & Noyan, Que., a distance of 45 miles, the portion in Canada being constructed under the charter of the Rutland & Noyan Ry. Co. The grading has been completed, with the exception of about 6 miles of rock excavation & of rubble embankment in the lake. To Dec. 31 18 miles of track had been laid, 14½ in Vermont & 3½ in Canada, in unconnected sections. The maximum grade outside of yard limits is 1° 30'; the maximum grade in the direction of the principal traffic is 0.57%, which is for only a short distance & is laid with 80 lbs. steel. The principal stations are at Burlington, South Hero, Grand Isle, North Hero, Isle la Motte, Alburg, Vt., & Noyan, Que. (July, '99, pg. 210.)

At Rouse's Point the Central Vermont owns the east end of a bridge which crosses Lake Champlain from the Vermont to the New York shore, while the Ogdensburg & Lake Champlain, which is controlled by the Rutland Ry. Co., owns the west end of the bridge to the center of the draw. On the night of Dec. 23 100 men were put at work by the Central Vermont laying track from the east end of the draw to the New York end. At the same time the Rutland Co. put on a force of men laying from its half of the bridge. To prevent the Rutland people from continuing their work, the Central people chained a heavy locomotive to the track, but the Rutland attached three engines to the Central locomotive, broke the chain which held it, & hauled it into their roundhouse at Rouse's Point. When the Central Vermont workmen quit work for the night, the Rutland officials put a force of men to work tearing up the track laid by the Central workmen. This resulted in a free fight, in which one man was thrown into the lake & another knocked insensible with a plank. At last accounts the difficulty had not been settled. A Plattsburg despatch of Dec. 27 said: "The Rutland road has been victorious so far, & its employes are rapidly completing the spur of the new drawbridge, which will connect its bridge with its tracks on the Alburgh, Vermont, shore. The Rutland still retains possession of the engine captured from the Central Vermont. The next move of the C. V. people is awaited with interest. Its tracks which were torn up, have been re-laid, & traffic over the old bridge has been resumed."

Shore Line, N.S.—It is said a steel draw bridge, 130 ft. over all, will be built over the Lancaster River at Musquash.

Spokane Falls & Northern.—The new passenger station at Spokane, Wash., proposed by the Great Northern, will be on the island between Washington & Howard Sts. Access will be made to it by a steel bridge on Washington St. & another steel bridge will connect the structure with the Howard St. bridge across the south channel of the river. The station is to be 350 ft. long & 50 ft. wide & 2 stories high. The 1st floor will include the waiting rooms, ticket office, baggage rooms, etc., while the 2nd will be given up to the offices of the S.F. & N. & Great Northern. The present S.F. & N. station will be abandoned & the present Union station will be given over exclusively to the O. R. & N. It is understood that the freight shed will be about 50x600 ft.—Railroad Gazette.

Toronto, Hamilton & Buffalo.—Owing to the increased freight business of this Co. & the C.P.R. at Hamilton, an extension of about 150 ft. to the Hamilton freight shed is contemplated. On Dec. 21 we were officially advised that the matter had not been definitely decided, but it was expected to be settled at an early date. The engine house at Hamilton is also expected to be doubled in size, to accommodate the increased number of locomotives purchased during 1899. (Dec., '99, pg. 353.)

The Victoria & Sidney Ry. has asked tenders for building a wharf to replace the old one at Sidney, B.C. A spur is being built from the main line to the wharf.

Elevator at Meaford, Ont.—Since pg. 6 of this issue went to press the Botsford-Jenks Co. of Port Huron, Mich., advise us that consequent on the passing by the Meaford rate payers of a by-law granting a bonus of \$25,000, they will build at Meaford a modern fast elevator that will handle grain as quickly as any elevator on the lakes & will have a storage capacity of about 600,000 bush. They will commence work early in the spring & expect to have the elevator ready for business by Aug. 1.

Railway Equipment Notes.

The Dominion Iron & Steel Co. has ordered 120 flat cars from Rhodes Curry & Co., Amherst, N.S.

Steel, Peech & Tozer, of Sheffield, Eng., who are represented in Canada by Jas. Hutton & Co., Montreal, have received a large contract for axles for the Belgian State railways.

Owing to large orders from the Russian government, the Westinghouse Air Brake Co. has decided to increase its plant in St. Petersburg to twice its present size. The Westinghouse air brakes have been universally adopted in Russia, & an Imperial decree recently issued orders that all cars on government or private railways be equipped with Westinghouse air brake apparatus.

During Dec. an order was placed for the Intercolonial with Rhodes Curry & Co., of Amherst, N.S., for 275 box cars & other orders were placed for 225 box cars. There were received at Moncton, during Dec., 30 cars from Rhodes Curry & Co., comprising refrigerator & flat cars. Two new engines were turned out of the Moncton shops during Dec. & 2 passenger engines were received from outside.

The Canada Atlantic built about 400 box cars at its Ottawa shops last year, also a number of refrigerator cars. A report having been circulated in the middle of Dec. that the shops were being shut down as a result of the acceptance by the Montreal Harbor Commissioners of the proposal of the Connors elevator syndicate, General Manager Chamberlain said: "The reason why the car shops have been temporarily closed is not

on account of the elevator scheme at all. We have run out of car sills & wheels, & as soon as we receive the necessary supply we will resume operations."

A novel method of ventilating passenger cars & clearing them of smoke has been introduced on several of the smoking cars on the Philadelphia & Reading. The device consists of three 2 bladed fans suspended from the top

of the ventilators & operated by a small air motor located upon the roof of the car. The motion of the car operates the air motor, its speed being regulated entirely by the speed of the train, & that in turn operates the fans upon the inside of the car, keeping up a continuous air circulation & forcing the smoke & foul air out through the ventilators. The fans are so arranged that they can be disconnect-

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Smoking Room.	Men's Toilet.
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Trespassers Prosecuted.	

NO ADMITTANCE

Size 10 x 2½ inches. Oblong, oval ends, white ground, blue letters, lined & tipped, hollowed:

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Luggage Room.	Private.
Office.	No Admittance.
Refreshments.	No Road.
Exit.	Boarding House.
Fire Escape.	Private Board.
Lavatory.	Dressmaking.
Ladies.	Fresh to Day.
Women.	Teas Provided.
Gentlemen.	Please Shut the Gate.

Size 14 x 3 inches. Oblong, oval ends, white ground, blue letters, lined and tipped.

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Oval, size 2 x 3 inches, white ground, blue letters, tipped, hollowed, lettered **Push, Pull**, as above.

Oblong, square ends, size 3 x 1½ inches, white ground, blue letters, tipped, lettered **Push, Pull**, as above.

Perpendicular, square ends, size 12 x 3 inches, white ground, blue letters, lined & tipped, lettered perpendicularly, **Push, Pull**.

Oblong, square ends, size 12 x 3 inches, white ground, blue letters, lined and tipped, lettered horizontally, **Push, Pull**.

Oblong, fancy ends, size 3 x 1½ inches, white ground, blue letters, lined and tipped, lettered **Push, Pull**.

C. P. R. LANDS.

The Canadian Pacific Railway lands consist of the odd-numbered sections along the Main Line and Branches, and in Northern Alberta and the Lake Dauphin District. The Railway Lands are for sale at the various agencies of the company in Manitoba and the North-West Territories at the following prices:

Lands in the Province of Manitoba average \$3 to \$6 an acre.

Lands in Assiniboia, east of the 3rd meridian, average \$3 to \$4 an acre.

Lands west of the 3rd meridian, including the Calgary District, generally \$3 per acre.

Lands in Northern Alberta and the Lake Dauphin District, \$3 per acre.

TERMS OF PAYMENT.

The aggregate amount of purchase money and interest is divided into ten instalments, as shown in the table below; the first to be paid at the time of purchase, the second two years from the date of purchase, the third in three years, and so on.

Interest on the outstanding purchase money is payable in one year, except in case of an actual settler who breaks up at least one-sixteenth of the land within that time. No rebate of interest is allowed on hay or grazing lands.

The following table shows the amount of the annual instalments on a quarter section of 160 acres at different prices under the new conditions:

160 acres at \$3.00 per acre, 1st instalment \$71.90, and nine equal instalments of \$60.
160 acres at \$3.50 per acre, 1st instalment \$83.90, and nine equal instalments of \$70.
160 acres at \$4.00 per acre, 1st instalment \$95.85, and nine equal instalments of \$80.
160 acres at \$4.50 per acre, 1st instalment \$107.85, and nine equal instalments of \$90.
160 acres at \$5.00 per acre, 1st instalment \$119.85, and nine equal instalments of \$100.
160 acres at \$5.50 per acre, 1st instalment \$131.80, and nine equal instalments of \$110.
160 acres at \$6.00 per acre, 1st instalment \$143.80, and nine equal instalments of \$120.

DISCOUNT FOR CASH. If land is paid for in full at time of purchase, a reduction from price will be allowed equal to ten per cent. of the amount paid in excess of the usual cash instalment.

Purchasers paying any instalment, or more, one full year before the date of maturity, will be allowed a discount on the amount of the instalment or instalments so paid at the rate of six per cent. per annum.

Interest at six per cent. will be charged on overdue instalments.

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ed from the motor by a very simple process. Beside clearing the cars of smoke & foul air, the fans tend to keep the cars cool in summer. The device is said to have originated on this line.—Railway Review.

Canadian Pacific Equipment.

A considerable amount of work is being done in remodelling the older portion of the passenger equipment. In the sleepers the smoking rooms are being converted from open to closed, nickelene washstands are replacing the old style marble washstands, the interiors are being redecorated & the seats covered with new plush, & the cars are being equipped with wide vestibules & steel platforms. Four parlor cars are being remodelled by cutting out one of the observation rooms & making the main room larger, & the interiors are being redecorated & fitted with wicker chairs, with arms covered with plush. A recent press report stated that all buffet cars were being converted into 1st class coaches & smokers. This is incorrect. Four first class coaches, 420 to 423 inclusive, are being remodelled, the buffet compartment being taken out & converted into a smoking room, & the interiors are being redecorated. These are all the 1st class cars with buffets that it is intended to remodel at present.

During Dec. 238 new standard 30 ton box cars were turned out of the Perth shops, & 20 30 ton flat cars were converted into box cars. Orders have been given to build the following cars at Perth, all of which are to be completed by June 1:—100 standard 30 ton flat cars, 200 standard 30 ton box cars, 75 standard 30 ton refrigerator cars for freight service, & 25 standard 30 ton refrigerator cars for passenger service.

Our last issue contained an extended description of the handsome trains recently placed on the Montreal Ottawa run, together with floor plans of the parlor cars & of the combination 2nd class & smoking cars. On this page are floor plans of the 1st class cars & of the baggage & express cars.

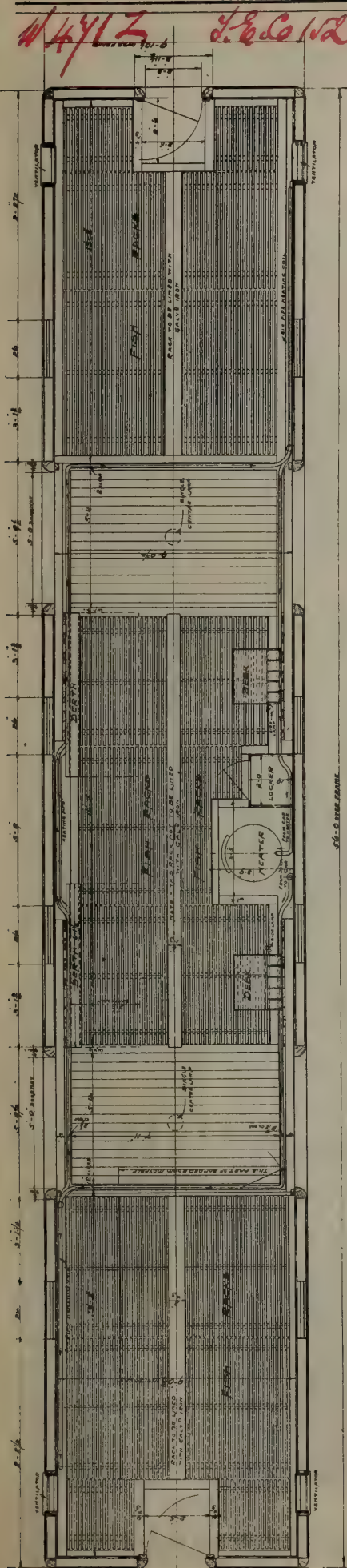
A recent Montreal press item stated that the Co. had placed an order at Dayton, Ohio, for building 200 box cars. We are informed that this is an error, no such order having been given.

It is stated, but not officially confirmed, that the Minneapolis, St. Paul & Sault Ste. Marie is considering ordering 250 ore cars. This Co. has ordered a compound decapod locomotive as a sample from the Baldwin Locomotive Works.

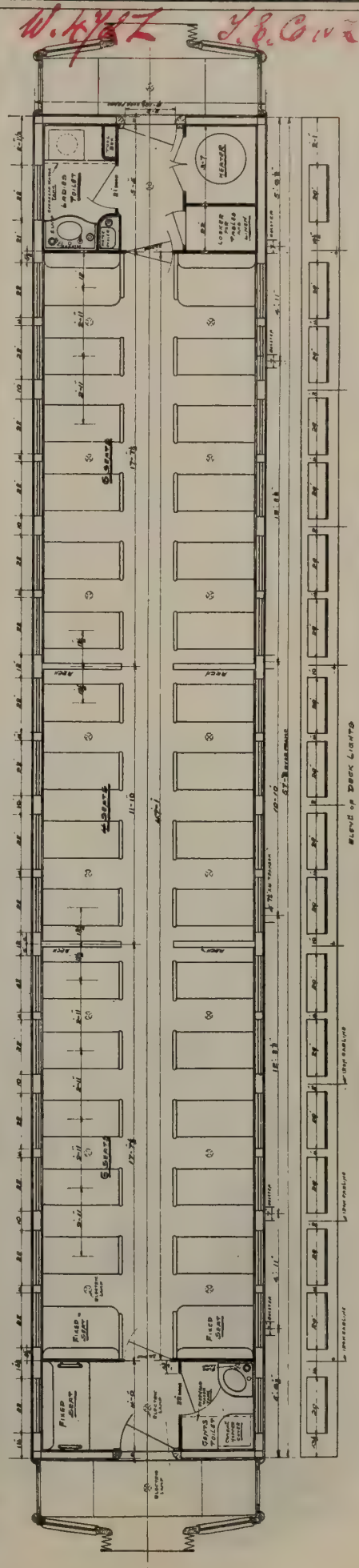
Grand Trunk Equipment.

During Dec. the Co. received 2 compound consolidation locomotives, nos. 956 & 957, from the Baldwin works. The Co.'s Montreal shops turned out 5 1st class passenger cars & 25 standard box cars. The passenger cars form part of what is known as the 800 series, & are of the wide vestibule order, 68 ft. long, with 4-wheeled trucks. They are equipped with Westinghouse quick action triple brakes, & air signals. A special feature is the steel platform, with an adjustable covering over the steps, making the whole platform a vestibule. The vestibule is lighted with a powerful light. The total weight of these coaches is 72,100 lbs. each, & they have each a seating capacity for 72 passengers. There are 20 windows on each side of the cars, finished outside & inside in Gothic architecture in oak & mahogany combination. The interiors are finished in quartered oak, & are extremely handsome. The seats are G.T. standard reversible pattern, upholstered in crimson plush. The other trimmings are of exquisite designs in bronze. A large & comfortable smoking room with seating capacity for 8 is provided. The saloons are fitted with the latest devices to make them as near per-

FLOOR PLAN CANADIAN PACIFIC RAILWAY BAGGAGE AND EXPRESS CARS.



FLOOR PLAN AND ELEVATION CANADIAN PACIFIC RAILWAY FIRST CLASS PASSENGER CAR.



fection as possible. The aisles are carpeted with Brussels, & linoleum covers the floor in the smoking compartment. The closets are self-flushing & separate lavatories are provided for ladies. The cars are heated by steam, & the ventilating arrangements are ample & satisfactory. The tout ensemble of these handsome coaches is one of elegance & everything about them wears an air of ease & comfort. Two of the coaches have been put on the Montreal-Toronto run, one on the Ottawa line, one on the Massena Springs branch & one on the eastern division between Montreal & Island Pond.

Safety Appliances Time Extension.

The time fixed by the U.S. Interstate Commerce Commission for the expiration of the period in which railways may equip their cars with couplers & brakes is Aug. 1, 1900, being an extension of 7 months. One of the arguments presented by the railways in making their request for an extension was the fact that every car that can possibly be of use in freight service is now running. With every road overrun with freight, as is the case at present, it is an injury to shippers to send to the shop even a single car unless repairs are absolutely necessary. Facts were also presented showing the pressure of orders on the manufacturers of couplers. The shops are well filled with orders for couplers & brakes to supply the 100,000 cars which are now being built, & this alone taxes their capacity. The decision of the Commission, prepared by Mr. Prouty, admits the claims of the railways, but remarks that some roads, including 3 or 4 important ones, have not tried to comply with the law. Taking the roads as a whole, however, the conclusion is reached that if as much progress is made during the next 6 months as has been made during the last 6 substantially all of the cars used in interstate commerce will be equipped with couplers. Mr. Prouty doubts the claims of some roads which say that they cannot get material fast enough; he seems to think that the trouble is due to their insistence on one particular make of coupler. He also refuses to admit that delay will be caused by the difficulty of getting cars home. The Louisville & Nashville equipped 4,000 cars in 6 months, & others ought to be able to do as well. The Erie asked for an extension of time for itself & for all other roads doing interstate business. The Commission doubts the propriety of granting relief to a road which is too indifferent to ask for it, but, as a just course toward such roads might injure others not at fault, it was finally decided to

grant a general extension. The existence of large numbers of cars that have M.C.B. couplers which, by reason of defective unlocking devices, do not comply with the law, is mentioned as a reason for not extending the time. Fifty-one roads had on Dec. 1 equipped more than 95% of their cars with automatic couplers.—Railroad Gazette.

RAILWAY APPOINTMENTS, Etc.

Alberta Railway & Coal Co.—As foreshadowed in our Nov. issue, P. L. Naismith, formerly Superintendent of Railway & Shipping for the Sydney & Louisburg Ry., has been appointed Manager of the A. R. & C. Co., & of the Great Falls & Canada Ry. Co., succeeding W. D. Barclay, who resigned some time ago. President Galt has issued a circular announcing the appointment as taking effect Jan. 1.

C.P.R.—J. T. Arundel has been appointed Car Service Agent of the Western Division, vice A. Allan, assigned to other important duties in the General Superintendent's Office.

R. Barnwell has been appointed Fuel Clerk of the Western Division, with office at Winnipeg, & returns & communications about the handling & distribution of fuel, formerly addressed to the Car Service Agent, will hereafter be sent to the Fuel Clerk.

Central Vermont.—C. E. Fuller having resigned, W. Hassman has been appointed Superintendent of Motive Power. Office at St. Albans, Vt. There is no truth in the report which has been going the rounds of the press stating that W. D. Robb, Master Mechanic of the G.T.R. at Toronto, has received an appointment on the C.V.

J. N. Clark, Traffic Representative at St. Alban's, Vt., has been transferred to Montreal.

Chicago & Grand Trunk.—See under head of "C. & G. T. Finances," page 5.

Dominion Atlantic.—On Jan. 1 the following changes were made:—W. Fraser, General Freight Agent, to be Assistant Superintendent, with headquarters at Kentville. F. G. J. Comeau, Station Master at Yarmouth, to be General Freight Agent, with headquarters at Halifax. D. McLellan, Ticket Agent at Annapolis, to succeed Mr. Comeau as Station Master at Yarmouth. F. H. Armstrong, Acting General Passenger Agent, to be General Passenger Agent, with headquarters at Kentville.

Grand Trunk.—C. H. Bevington has been appointed Trainmaster, 3rd district, and 2nd district between Island Pond, Vt., and Richmond, Que. Office, Island Pond, Vt.

X. H. Cornell, heretofore Chief Train Despatcher of the 26th district, has been appointed Trainmaster 4th and 5th districts, also 2nd district between Montreal and Richmond, Vt., vice R. P. Dalton transferred to Western Division. Office, Bonaventure Station, Montreal. The office of Superintendent of Montreal Terminals is abolished.

R. P. Dalton, heretofore Trainmaster at Montreal, has been appointed to a similar position on the 26th district, including Battle Creek and Nichols yards & stations. W. J. Stinson has been appointed Chief Train Despatcher of the 26th district, succeeding X. H. Cornell, promoted to be Trainmaster at Montreal.

W. Aird, Master Mechanic in charge of the Montreal work shops, having retired on account of advancing years, has been succeeded by A. G. Elvin.

T. McHattie, heretofore Acting Master Mechanic for the Eastern Division, has been appointed Master Mechanic for the Eastern Division, with headquarters at Montreal.

S. Walker, for 17 years Foreman at the Point St. Charles shops, has been appointed General Foreman of the Dominion Bridge Co.'s works at Lachine.

D. E. Carruthers has been appointed Contracting Freight Agent at Quebec.

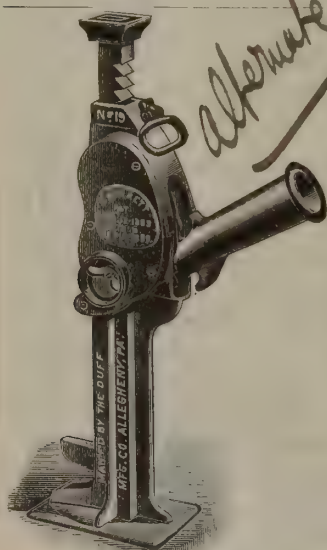
A press report stating that Jas. Kane, heretofore Roadmaster over the North Hastings division, has been transferred to Belleville is incorrect. No person of that name has been Roadmaster on the division named.

Lake Erie & Detroit River.—E. A. Drake has been appointed Travelling Freight & Passenger Agent, vice L. E. Tillson assigned to other duties. Office at Chatham, Ont.

New York Central & Hudson River.—The following appointments took effect Jan. 1:—E. J. Richards to be Chief Assistant General Passenger Agent, with office at Grand Central Station, N.Y.; F. J. Wolfe to be Assistant General Passenger Agent, with office at Grand Central Station; W. M. Skinner to be Acting General Baggage Agent, with office at Albany, vice F. J. Wolfe, promoted; A. E. Brainard to be General Agent Passenger Department, with office at Albany, vice F. J. Wolfe, promoted.

Northern Pacific.—J. O. McMullen, Travelling Freight Agent on the Western Division, has been appointed General Agent of the Co. at Vancouver, B.C.

Spokane Falls & Northern.—Jas. N. Hill has been elected President, vice J. J. Hill resigned. F. W. Bobbett has been elected Vice-President, vice C. Shields resigned to accept service with the Virginia & Southwestern Ry. F. S. Forest has been appointed Superintendent



The Barrett Track Jack....

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These Jacks are made with Malleable Iron Frames, Steel Pawls, Machinery Steel Bearings and Pivots, forged Steel Rack. The wearing parts are removable and readily renewable at slight expense. The rectangular base gives great lifting strength and fits into close quarters better than other shaped stands. Adaptable to either high or low set loads.

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in charge of operation & maintenance of the property.

United Counties.—Following is the new organization: President, H. A. Hodge; Vice-President & Treasurer, F. D. White; other directors, J. M. Greenshields & L. F. Morrison; General Traffic Manager, A. Ouellette; Superintendent, R. A. Trudeau; Auditor, P. J. Evans. General offices at St. Hyacinthe, Que.

Wabash.—On Jan. 1 a new division, the Detroit, was established, comprising the line between Detroit, Mich., & Chicago, the Helmer branch & Montpelier yard. The Detroit division is placed under the superintendency of G. M. Burns, with headquarters in Detroit. Since Mar., 1896, Mr. Burns has been in the Wabash general offices in St. Louis, filling the dual position of Fuel Agent & Secretary to Vice-President & General Manager Ramsey. Division Superintendent Burns has issued his first circular, announcing that until further notice the jurisdiction of G. S. McKee, Master Mechanic; E. K. Woodward, Resident Engineer; A. B. Adams, General Roadmaster, & W. S. Danes, Superintendent of Bridges & Building of the Eastern Division, will be extended over the Detroit division & these officers will report & receive instructions from the Detroit office in regard to matters relating to the Detroit division.

Mainly About People.

Sir Wm. & Lady Van Horne gave a brilliant ball, at their beautiful residence in Montreal, Dec. 27.

R. A. McKay, foreman of the M.C.R. car shops at St. Thomas, Ont., died Dec. 23, aged 71.

R. P. Fitzgerald, one of the largest vessel owners on the great lakes, died at Milwaukee, Wis., Jan. 9, aged 75.

C. W. Vaughan, formerly of the G.T.R., has been appointed Master Mechanic at Newark, Ohio, on the Baltimore & Ohio Ry.

G. H. Ham, of the C. P. R. Advertising Department, slipped while getting out of his bath, Jan. 7, & broke a couple of ribs.

A. MacMurchy, one of the local solicitors of the C.P.R. at Toronto, was married at Port Hope Dec. 27, to Miss H. J. S. Craick.

C. N. Armstrong, of the Atlantic & Lake Superior Ry., has a son, Chas. I., a lieutenant in E company of the Canadian contingent.

J. B. Griffith, ex-manager of the Hamilton St. Ry., has been presented with a handsome travelling outfit & an address by the employees.

Lieut. A. C. Ledyard, who was recently killed in an uprising in Negros, was a son of H. B. Ledyard, President of the Michigan Central R.R.

Miss Mabel L. Pease, only daughter of the District Passenger Agent of the G.T.R. at Montreal, was married, Jan. 1, to E. G. Hicks, of Minneapolis., Minn.

F. R. F. Brown, formerly Mechanical Superintendent of the I.C.R. at Moncton, N.B., has received an appointment from the Dominion Steel Co. at Sydney, N.S.

J. A. Villeneuve, Treasurer of the R. & O. N. Co., was recently presented with an appropriate token of the esteem in which he is held by his fellow employees.

C. McGrath, Land Commissioner of the Alberta Ry. & Coal Co. at Lethbridge, was married in Montreal, Dec. 19, to Miss Mabel Galt, daughter of the late Sir A. T. Galt.

B. B. Peters, formerly of the I.C.R. at Moncton, N.B., has been appointed Assistant New England Agent for the South Eastern Freight Association, with quarters at Providence, R.I.

Dr. E. H. Williams, senior partner of the Baldwin Locomotive Works, of Philadelphia, died at Santa Barbara, Cal., in Christmas week, of heart trouble. He was prominently connected with early railways in Wisconsin.

H. D. Lumsden, C.E., who spent most of last year in Manitoba looking after C.P.R. surveys & the construction of branch lines, was in Toronto with his family for Christmas & the New Year, & has returned to Winnipeg.

Lewis Blair, second son of the Minister of Railways, died suddenly at his father's house in Ottawa, Jan. 7. For the past 2 years he was Private Secretary to F. A. Heinze, of Montana, who built the Columbia & Western Ry. from West Robson to Rossland.

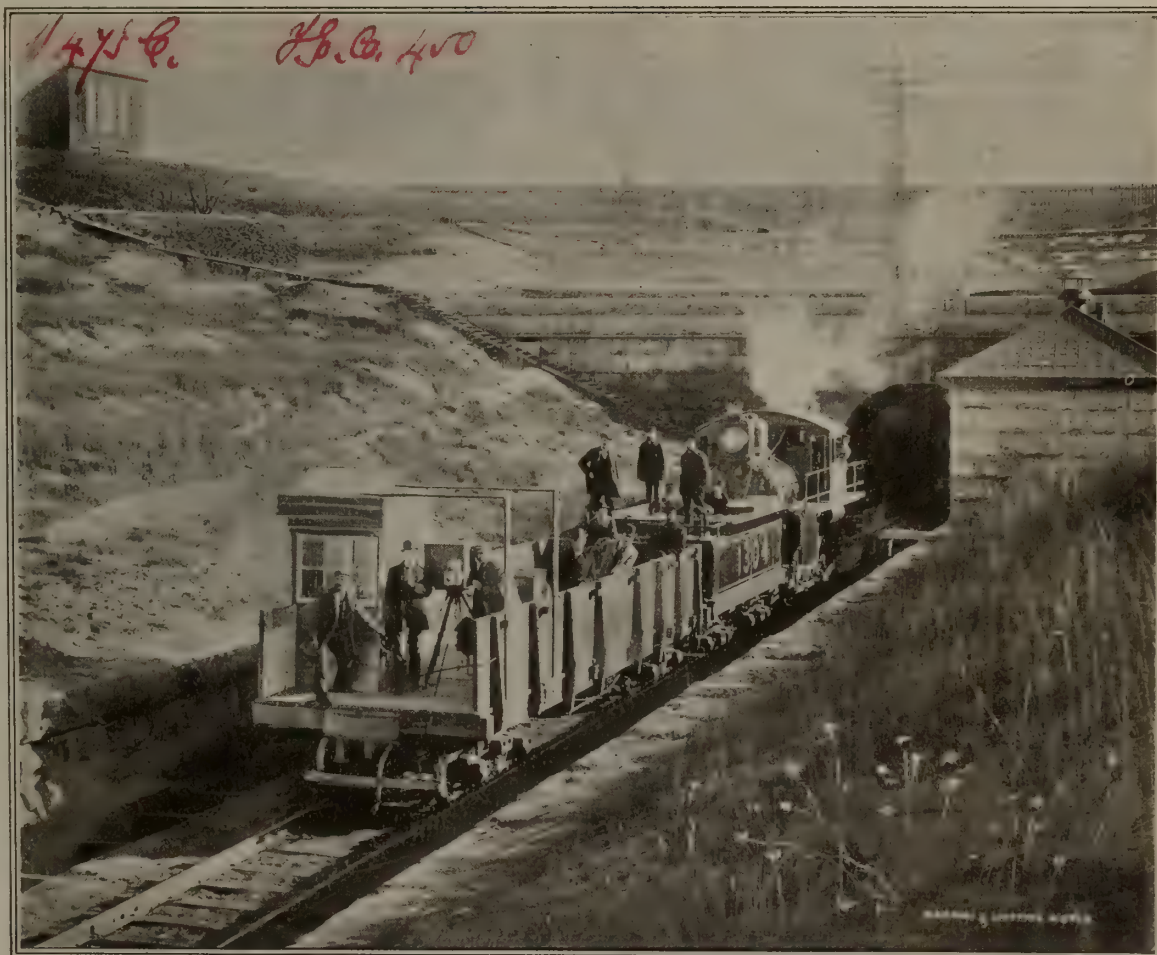
On retiring recently from the management of the C.P.R. Co.'s Telegraphs, C. R. Hosmer presented B. S. Jenkins, General Super-intendent of Telegraphs at Winnipeg, with a gold watch & a chain of gold & platinum in remembrance of many years of business connection.

R. T. Lincoln & N. B. Ream, executors of the estate of the late G. M. Pullman, of Pullman car fame, have been allotted \$425,000 as compensation for their services. The widow's award was \$20,000, which will be applied to the erection of a monument in memory of her husband. The estate will figure up nearly \$14,000,000.

Captain Archibald Cox, of Maitland, N.S., who was well & favorably known to the ship-building community of that province 25 years ago, died in Montreal recently. He belonged to a family of shipowners & shipmasters, who were very prominent in their line, when Maitland was one of the most flourishing ship-building centres of N.S. Later on he was in business in Antwerp & Liverpool, but of late years had been residing with his daughter in Montreal.

Baron Adolphe Von Hugel, who died in Montreal, Dec. 20, of paralysis, aged 68, was a member of an old Bavarian titled family. He was born in Heidelberg, & came to Canada after a residence in Philadelphia & New York. About 35 years ago he became connected with the Midland Ry. as President, & lived in Port Hope, Ont. But the railway was not a paying institution under his management, & it fell into the hands of Senator Cox & others, who sold it to the G.T.R.

C. Shields, formerly of the Western Division of the C.P.R., who recently resigned the



OUTFIT USED IN TAKING FLASHLIGHT PHOTOGRAPH OF INTERIOR OF ST. CLAIR TUNNEL, GRAND TRUNK RAILWAY SYSTEM. SEE PAGE 15.

Vice-Presidency & General Managership of the Spokane Falls & Northern, has been appointed Vice-President & General Manager of the Virginia & Southwestern, which operates 118 miles & has 45 miles under construction. The line now operated runs from Looney Creek, Va., to Elizabethton, Tenn. An extension is being built from Elizabethton to Mountain City, Tenn. Mr. Shields will have charge of the operating & traffic departments, with headquarters at Bristol, Tenn.

Jno. Patterson, of Hamilton, Ont., is known as the "electric man" of that city, & in this field he has achieved great success. In the 80's he began to develop the electric undertakings which have since done so much for the city. In 1895 the electric line around the beach to Burlington was completed, & the next year Mr. Patterson organized the Cataract Power Co. to develop power at DeCew's Falls & transmit it to Hamilton. This company has now a capital of \$3,750,000 & controls the Hamilton Electric Light & Power Co., the Hamilton St. Ry. Co., the Hamilton & Dundas Electric Ry., the Hamilton Radial Electric Ry., & the Electric Power & Manufacturing Co., of Hamilton.

W. G. Collins, General Manager of the Chicago, Milwaukee & St. Paul, has resigned, to take effect Feb. 1, & it is understood that he will soon afterward go to Europe to remain for several months. He was born in Wisconsin Nov. 21, 1851, & began railway work in 1868 on the C.M. & St. P. From 1870 to 1873 he was with the Northern Pacific & the Canada Southern, but in 1873 he returned to the C.M. & St. P., on which road he steadily worked his way up until 1877, when he became Chief Train Despatcher & Superintendent of the River Division. This position he held until 1889, when he was made Assistant General Superintendent. In 1891 he became General Superintendent, & in 1898 was promoted to be General Manager.

J. C. O'Neil, of Kemptville, Ont., died Dec. 21, at Port Arthur, where he was on business in connection with his contract on the Ontario & Rainy River Ry. He was associated with Guy Campbell in building several sections on the C.P.R. They also built 10 miles of the Pontiac & Pacific Jct., near Quyon, a 10 mile section of the Ontario & Quebec, near Kemptville; 15 miles of the Quebec & Lake St. John; 20 miles of the Temiscouata; 15 miles of the New Glasgow branch of the Intercolonial, & the missing link in the Annapolis & Digby, in N.S. While associated with Geo. Ferguson, of Kemptville, deceased built several sections of the Ottawa, Arnprior & Parry Sound, & he also had contracts on the Crow's Nest Pass

Ry. He was owner of an extensive ranch in western Ontario.

W. J. Conners, head of the Montreal elevator syndicate, was born 42 years ago in Toronto. His father, P. Conners, was educated at St. Michael's College, Toronto, in the early forties, & was afterwards a mail conductor on a line of steamers running between Toronto & Montreal. W. J. acquired a seafaring taste on Lake Ontario; sailed on the Great Lakes for a number of years; was employed on the docks in Buffalo; was a stevedore & developed into a contractor & shipowner; employs during the season of navigation in Buffalo, Chicago, Milwaukee & Gladstone, Mich., about 6,000 men; owns two newspapers in Buffalo, the Courier & the Enquirer; is well known among lake shipping men; is regarded as a shrewd man of business & good at making a bargain; likes to get fair play & to give it; commands lots of money, but never advises other people to invest capital where he will not invest his own; thinks the Harbor Commissioners wanted to drive a hard bargain, but has tremendous faith in the elevator project for Montreal.—Montreal Herald.

Hon. L. E. Baker, President of the Yarmouth S.S. Co., was found dead in a sleeping car on its arrival at Boston from New York, Dec. 31. He was born at Yarmouth, N.S., in 1831, his ancestors having come from Massachusetts. From 1855 to 1864 he was in partnership with J. Young as general merchants & shipbuilders. He then engaged in business on his own account, & for many years was the most active & prominent business man in Yarmouth. Among the prominent positions which he held were the presidency of the Bank of Yarmouth & of the Yarmouth S.S. Co. He was also President of the Yarmouth Marine Railway Co., the Yarmouth Woollen Mill Co., of the Yarmouth Duck & Yarn Co., & of the Yarmouth Grand Hotel Co. He was prominent in connection with the Yarmouth Museum & Public Library, which was founded by him. He was married three times; his third wife, who survives him, is a daughter of the late G. B. Creighton, of Dartmouth, N.S. His daughter, the Hon. Mrs. Stopford, lives in England, & he has two sons, Prescott & Seymour. He had \$60,000 in life insurance.

Walter Shanley, C.E., who died at the St. Lawrence Hall, Montreal, Dec. 17, was born in Queen's County, Ireland, in 1819. Shortly after his arrival in Canada he was employed by the Government on the Welland & Beauharnois canals & was subsequently connected with important railway works. He was General Manager of the G.T. Railway from 1858 to

1862. His most important work as a railway contractor was the construction of the Hoosac tunnel in Massachusetts, one of the greatest engineering works of the century, on which he was engaged from 1869 to 1875. Since then he had been widely employed as a consulting engineer. At one time he was a prominent figure in Canadian politics. He sat in the old Parliament of Canada from 1863 to 1867, & was also a member of the 1st, 5th & 6th Parliaments after Confederation. He was a strong Conservative in politics, & was a close friend & associate of Sir Jno. Macdonald, Sir Geo. Cartier, & D'Arcy McGee. He was a delegate from Canada to the Detroit Trade Congress in 1864, with Jos. Howe & Jno. Young. For some years he was President of the Mechanics' Bank. He was buried at London, Ont.

Jas. Charlton, who on Jan. 1 retired from the general passenger & ticket agency of the Chicago & Alton, fitly bears the title of Nestor of his business in America. He has been a leading figure in passenger traffic circles for many years, & his retirement is viewed with regret. He has been in continuous railway service for 52 years. He was born in Bothal, Eng., in 1832, & took up railway work in 1847 as junior clerk in the freight department of the Newcastle & Carlisle Ry. He was later made chief clerk and then cashier of the same department. In 1857 he left England for Canada, where he entered the service of the Great Western Ry. as assistant to the Chief Clerk of the Audit Office, in charge of statistics & freight accounts. He later served consecutively as Chief Clerk, Auditor & General Passenger Agent of that road. In 1870 he went west as General Ticket & Passenger Agent of the North Missouri Railroad. In July, 1871, he entered upon his long & brilliant connection with the Chicago & Alton as General Passenger & Ticket Agent—a connection that is closed now only because of the exigencies of the reorganization which the new owners of that road are effecting.—Railway Review.

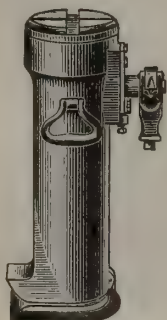
Granville C. Cuningham.

In a recent issue we announced that G. C. Cuningham, M.I.C.E., Managing Director of the City of Birmingham Tramway Co., had been appointed General Manager of the Central London Ry. The Tramway & Railway World has the following reference to him:—Mr. Cuningham, who was born in Edinburgh in 1847, acquired his profession of civil engineer there. Till 1870 he was engaged in connection with various railway, road, & water works in Scotland, & in that year he went to Honduras to take part in the surveys for the Honduras Ry. Operations had to be suspended on the outbreak of a war, & in 1871,

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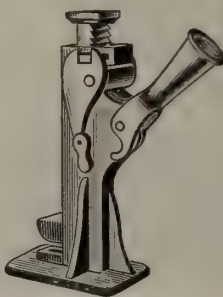
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40 Ton Jack.



10 Ton Automatic Lowering Jack.



15 Ton Track Jack.



8 Ton Jack.

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THE FIRSTBROOK BOX CO.,
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AND SIDE BLOCKS,

TORONTO.

he went to Canada, where he was engaged in charge of railway construction work in various districts. Among his undertakings were the charge of an exploration & surveying party in Manitoba for the C.P.R., & engineer in charge of the Prince Edward Island Ry., & of the construction & maintenance of the harbors & lighthouses of that province. The study of railway law occupied his attention in the late seventies, & in 1882 he was appointed Chief Engineer of the Canada Southern Ry., where he carried out important works, including the construction of the docks & approaches for the ferry crossing conveying the trains over the Detroit River, & the surveys & selection of site for the cantilever bridge across the Niagara gorge. As a contractor he undertook the construction of an important branch line to connect with the bridge. From 1884 to 1886 he was assistant to the Manager of Construction of the Rocky Mountain division of the C.P.R., & spent two years among the mountains on construction work. It was there that he had the peculiar, not to say thrilling, experience of watching avalanches coming down the mountains, in order that he might determine the parts of the railway to be protected by avalanche sheds. After more contracting work he became city engineer of Toronto, & in that capacity he, in 1891, visited various places in the U.S. & reported on methods of tramway traction. On his recommendation the electric system was adopted. In 1892 he was appointed chief engineer for the conversion of the Montreal street railways to the electric system, & a year later he became manager as well as engineer. This system consists of 85 miles of track & runs about 250 cars per day. Mr. Cuninghame held this position till 1897, when he came to Birmingham for the purpose of carrying out the conversion of the system there to electricity &

occupied the position of Managing Director of the Co. The well known dog in the manager policy of the municipality, however, effectively throttled the proposed improvements, but Mr. Cuninghame reconstructed the cable tramway power station so that the cost of working was largely reduced, & made other improvements & managed the service so as to markedly increase the net earnings of the Company. Mr. Cuninghame is a member of the Institution of Civil Engineers & of the Canadian Society of Civil Engineers. It will thus be seen that the Central London Ry Co. has in him secured a man of most varied experience in the profession, & that his great knowledge both of railway & tramway working should be of much benefit to the Co."

The G. T. R. Traffic Manager.

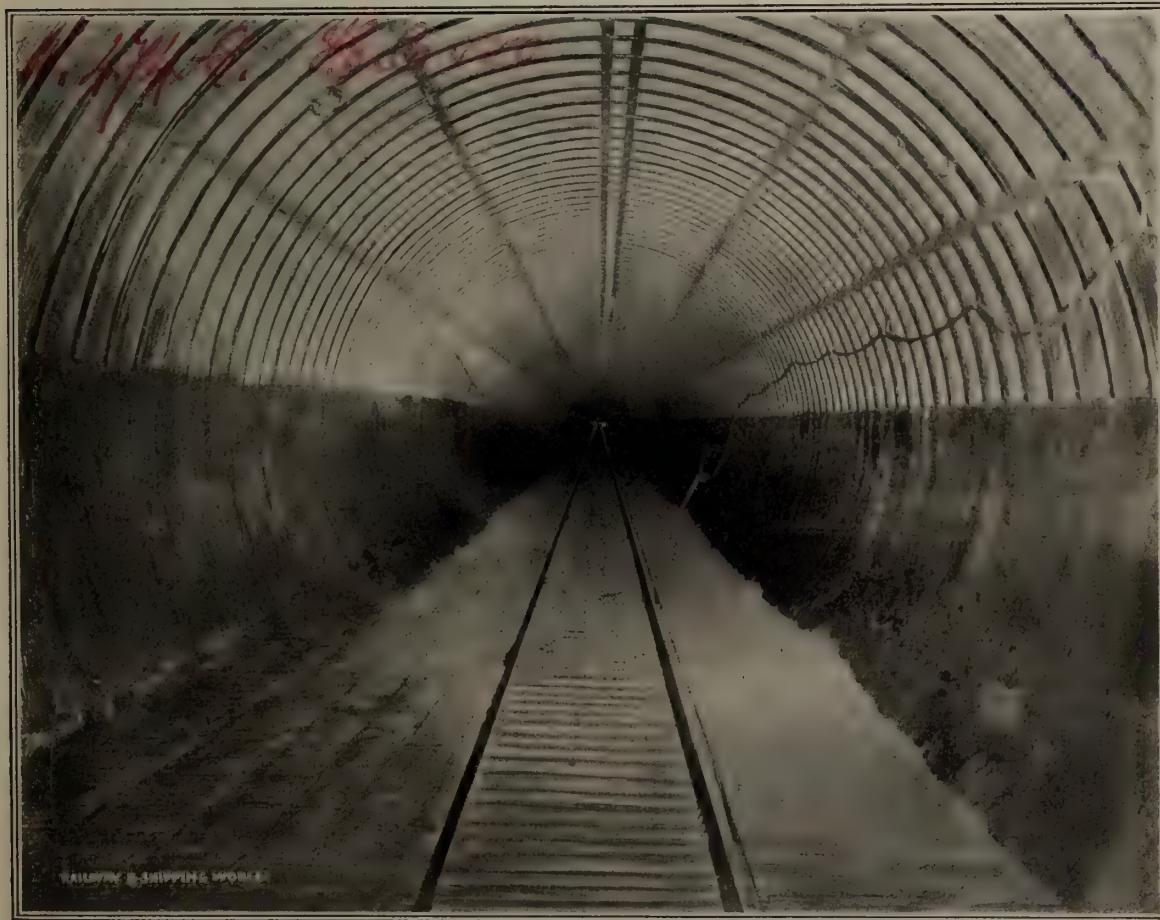
George Bell Reeve, whose portrait appears on page 1 of this issue, was born in Surrey, Eng., Oct. 23, 1840. He came to Canada in 1860, since May of which year he has continuously been in the service of the G.T.R. According to the official record reproduced by Morgan, he served in the capacity of Freight Clerk at Belleville until 1862, & as telegraph operator from 1862 to 1863, when he was appointed train despatcher, continuing in that position until 1865, when he became relieving agent. In 1866 he was appointed agent at Parkhill & remained there until 1873, when he was appointed Assistant General Freight Agent, with headquarters at Montreal. In 1874 he was removed to Toronto in charge of the Western district, & in 1876 to Sherbrooke in charge of the Eastern district. In 1878 he again made his headquarters at Montreal. In 1881, when the Chicago & G.T. Ry. was completed to Chicago, Mr. Reeve was appointed

Traffic Manager, & in 1890, when the Cincinnati, Saginaw, & Mackinaw Ry. was acquired in the interest of the G.T., its traffic affairs were also placed under Mr. Reeve. In Feb., 1896, he was appointed General Traffic Manager of the G.T.R. system, with headquarters at Montreal, & in 1899, on the acquisition of the Central Vermont Ry. by the G.T., he was given the additional position of General Traffic Manager of that line. Mr. Reeve is a member of the Church of England. He was married in 1865 to Miss Alice Jones, of Warwick. He resides in the Prince of Wales Terrace, Montreal, & is a member of the St. James Club, the New York Club, etc. Early in Jan. it was reported in Montreal that Mr. Reeve was about to retire from railway life & take up his residence in California. When confronted with the story on his return to Montreal from the west, he smiled, & said he was very much obliged to the person responsible for the story. While admitting that he was building in California, he would not confirm the statement that his intentions were identical with those of the rumour.

Photographing St. Clair Tunnel.

Officials of the G.T.R. have recently succeeded in obtaining a flashlight photograph of the interior of the Sarnia tunnel from portal to portal. Numerous photographers from different parts of America have repeatedly tried to take one, but hitherto without success, & in the recent instance some half dozen experiments had to be made before the view was obtained. A set of large flashlight lamps were made in New York for the purpose, & a car arranged with the taking machine & flashlight apparatus was brought into requisition, from which the experiments were made.

In the history of moving pictures this was the first attempt to obtain a flashlight picture of a tunnel through which an engine & car were flying at the rate of 30 miles an hour. The experiment was only by way of trial for the first few trips, to see what could be done, & results demonstrated the possibility of perfect pictures on a complete scale such as is required for the biograph. The gondola car on which the working machines were placed was fitted up with a specially arranged outfit. A small house was built on the right, in front of the car in which were arranged the four powerful flashlight machines. The machines were connected with the compressed air on the locomotive, with attachments on the tubing to regulate the air which forced the magnesium powder from the powder chambers of the flashlight apparatus, out through an aperture, across a flame of alcohol, where it ignited & gave forth a great light of pure white & brilliancy, & with parabolic reflectors placed behind the flame, the light was



FLASH LIGHT PHOTOGRAPH OF INTERIOR OF ST. CLAIR TUNNEL GRAND TRUNK RAILWAY SYSTEM.

thrown for a distance of more than 1,000 ft., illuminating the tunnel to the smallest detail, & producing the desired effect for a sharp & good negative. The experiments were novel & exciting, as can be imagined—the engine running like a huge bullet through what practically looked like an immense gun barrel, illuminated with a light that could not be faced, & which necessitated the operators & those who took part in the experiments wearing blue glasses, & rushing through this hollow tube at a 30 mile pace. The mutograph or machine used by the biograph company for taking the pictures was placed on the left of the flashlight cabin, the electric motor used for running the machine being connected with 4 storage batteries that were carried on the car. Illustrations of the outfit used & of the interior of the tunnel are given on pgs. 13 & 15.

In connection with the photographing it may be of interest to give the following particulars:—The length of the tunnel proper is 6,205 ft., & of the open portals or approaches, 5,603 ft. additional, or more than 2 miles in all, the largest sub-marine tunnel in the world. It is a continuous iron tube, 19 ft., 10 ins. in diameter, put together in sections as the work of boring proceeded, & finally bolted together, the total weight of the iron aggregating 56,000,000 lbs. The work was commenced in Sep., 1888, & it was opened for freight traffic in Oct., 1891. Passenger trains began running through it Dec. 7, 1891.

The work was begun at both sides, & carried on until the two sections met in mid-river, & with such accuracy that they were in perfect line as they came together. Throughout its entire length it perforates a bed of blue clay, & with the exception of an occasional pocket of quicksand & water, with once in a while a rock or boulder, the clay was the only material met. The borings were made by means of cylindrical steel shields, with cutting edges, driven forward by hydraulic rams, & as fast as the clay was cut away a section of the iron wall of the tunnel was bolted to its fellow section, & thus the wall was completed as the work progressed. The clay overlies a comparatively level bed of rock, & in some places is itself overlaid with a bed of sand. Had the ledges pushed upward into the clay to any extent, or the sand pockets penetrated downward, the work would have been much more difficult. The rails of the track rest upon cross ties only 6 ins. apart, laid on stringers, which in turn rest on a bed of brick & concrete, filling the bottom of the tube.

The engines used to pull the trains through the tunnel & up the steep grades after emerging, are the largest in the world, having 10 driving wheels, & weighing nearly 200,000 lbs. The boilers are 74 ins. in diameter, the fire-boxes are 132½ ins. long & 32½ ins. wide, & the cylinders are 22 ins. in diameter, with 26 ins. stroke.

The cost of the tunnel was \$2,700,000, & when it is understood that 4,000 cars can be daily moved through it, & this is contrasted

with the slow & laborious transfer by ferry, it will readily appear that the enormous expenditure was one which yields profitable returns.

RAILWAY PROJECTS.

Athabasca Central Ry.—C. W. Cross, Solicitor, Edmonton, Alta., gives notice of application to the Dominion Parliament to incorporate a company under this name to construct & operate a railway from Edmonton, on the north side of the North Saskatchewan River, to or near Victoria Settlement, thence to the Athabasca River via Lake La Biche River, thence to or near the mouth of House River, thence to or near the mouth of Clearwater River at or near Fort McMurray, thence to or near the mouth of Tar River, thence to the Red River, thence to or near Vermillion Falls on Peace River, & thence to or near Fort Smith on Slave River; also from or near Fort Smith to or near Fort Churchill on Hudson's Bay or from Black Lake, being the head of navigation of Lake Athabasca, to or near Fort Churchill; also to build & operate a tramway near the Athabasca River from House River to Clearwater River, also near to Peace River in the vicinity of Vermillion Falls, & also near to Slave River at or near Fort Smith, & with other powers.

The Bay of Quinte Ry. Co. gives notice of application to the Dominion Parliament for an act to extend the time for the completion of the main line, extensions & branches, & for other purposes.

Connor Station to St. Charles Jct., etc.—J. X. Straton, Solicitor, Ottawa, gives notice of application to the Dominion Parliament to incorporate a company to construct & operate a railway from Connor Station, N.B., on the St. Francis branch of the Temiscouata Ry., to a point on the I.C.R. at or near St. Charles Jct., or a point on the Quebec Central Ry. at or near St. Anselme, or a point on the G.T.R. at or near Chaudiere Jct., Que., & with other powers.

Crow Lake Ry. & Development Co.—Teetzel, Harrison & Lewis, Solicitors, Hamilton, give notice of application to the Ontario Legislature to incorporate a company under this name to construct a railway from White Fish Bay, Lake of the Woods, easterly to Crow Lake, and with other powers.

The Kingston & Pembroke Ry. Co. gives notice of application to the Dominion Parliament for authority to extend its line from Renfrew, Ont., across the Ottawa River to Bryson, Que., & thence northward to the eastern branch of the Ottawa River.

Kitimat Arm to Hazelton, etc.—Wilson & Senkler, Solicitors, Vancouver, give notice of application to the Dominion Parliament to incorporate a company to build & operate a railway from Douglas Channel at or near the head of Kitimat Arm, in the Coast District of B.C., thence by way of the mouth of Copper River, the Kitsalas Canyon & the Skeena River, to or

near Hazelton, Cassiar; thence by way of Babine, Manson & Parsnip rivers, or other feasible route, to Pine River Pass, Cariboo; or, as a partially alternative route, from or near Kitsalas Canyon to Bulkley Valley, & thence following the valley of the Bulkley River to Hazelton; & also to build & operate railways from the nearest or most available point on the route of the aforementioned railway, southerly & easterly by way of the Stuart Lakes, or other convenient route, to or near Fort George, thence along the valley of the Fraser river to Quesnelle, Cariboo; & also from or near Fort George or the Stuart Lakes, by way of the south fork of the Fraser River, Cariboo, to the Yellowhead Pass, Alberta, with power to extend the railway from Kitimat Arm along the northerly side of Douglas Channel to or near Hartley Bay, & with other powers.

Lake Bennet to Hootalinqua River.—D. G. Macdonell, Solicitor, Vancouver, gives notice of application to the Dominion Parliament to incorporate a company to construct a railway from the west side of Lake Bennet, Yukon, to Lake Laberge & thence to the mouth of the Hootalinqua River at its junction with the Lewes River, to own & navigate vessels & with other powers.

Lindsay, Bobcaygeon & Pontypool Ry.—At the same time as the municipal elections were held recently by-laws granting bonuses to this enterprise were voted on & carried as follows:—Township of Harvey \$3,000, Village of Bobcaygeon \$11,000, Township of Verulam \$14,000, Township of Ops \$15,000, Town of Lindsay \$25,000, Township of Manvers \$5,000. In the township of Cartwright the municipal elections having been by acclamation only a small vote was polled, though there was a considerable majority for the by-law, & an investigation is now being made to see if the necessary aggregate number of votes was polled. The municipalities mentioned above are all through which the proposed line would pass, & as they have all granted aid it is expected that the Co. will now proceed to finance the undertaking, & to make arrangements for starting construction. (Dec., '99, pg. 359.)

The Montreal & Ottawa Ry. Co. gives notice of application to the Dominion Parliament for an Act extending the time within which it may complete its railway & connect it with the C.P.R. in Ottawa, & for other purposes.

Morris & Portage Railway Co.—T. L. Metcalfe, Solicitor, Winnipeg, gives notice of application to the Dominion Parliament to incorporate a company under this name, to build & operate a railway telegraph from or near Morris, Man., to or near Portage la Prairie, & with other powers.

The Naplerville Jct. Ry. Co. gives notice of application to the Quebec Legislature to amend its charter, by giving it the option to construct its line between a point in the Parish of St. Constant & a point in the Parish of La-colle, at or near Rouse's Point.



Richmond Locomotive and Machine Works,

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Simple and Compound

LOCOMOTIVES.

Adapted to every variety of service.

The Oshawa Ry. Co. gives notice of application to the Dominion Parliament for an act to extend the time for the completion of its main line & branches, & for other purposes.

The Thousand Islands Ry. Co. gives notice of application to the Dominion Parliament for an act to extend the time for the completion of its main line, extensions & branches, & for other purposes.

The Western Alberta Ry. Co. gives notice of application to the Dominion Parliament for an act to extend the time limited for the commencement & completion of the undertaking.

Vancouver Island & the Mainland.—The negotiations between the Victoria City Council & the Port Angeles Eastern R.R. Co., in reference to the establishment of a fast passenger steamer & car ferry service between Port Angeles, Wash., & Victoria, has fallen through. The Co., which originally asked for an annual subsidy of \$17,500 for 20 years, refused to accept a reduction of the amount to one half, as offered by the city. The Co. also objected to some of the City's stipulations, particularly one requiring the vessels employed to be built & owned in Victoria. (Nov., '99, pg. 334.)

But little progress has been made in regard to the proposal that the city of Victoria subscribe for \$500,000 of stock in a company to acquire the Victoria & Sidney Ry., to extend it into the business part of Victoria, & to a convenient port north of Sidney; to establish & operate a ferry system between such extension on the Saanich peninsula & the mainland of B.C., south of the Fraser River, & to build & operate a railway from such point on the mainland through Delta, Surrey, Langley, Matsqui, Sumas & Chilliwack. The Council, in the by-law which has been drafted, insists that the city shall incur no liability in respect to its subscription for shares until the company shall have, either by the sale of its shares or by municipal, provincial or federal cash bonuses, cash grants or guarantees in aid of the construction of the undertaking, secured to it for the purpose of its undertaking not less than \$500,000. A motion to reduce to \$200,000, the sum to be raised by the company outside the city's subscription, was defeated in the council, the promoters of the company refuse to accept the provision above mentioned, & the matter is therefore at a standstill. (Dec., '99, pg. 360.)

Victoria to North End of Vancouver Island.—In discussing the claims made by U.S. papers, that the whole of southeastern Alaska is likely to be the scene of mining operations, the Victoria, B.C., Colonist says it believes that, just as exploration is disclosing that the gold-bearing rocks are found all the way along the coast from Lynn Canal to Prince of Wales Island, & westward in the archipelago as far as Baranoff Island, so it will be found before long that the formation which carries gold in Atlin extends southeastward on the east side of the Coast Range, possibly all the way to the Fraser River. However this may be, there is abundant evidence that the gold mining industry of the Northwest Coast is only in its infancy. It is likely to increase very rapidly during the next few years. The Colonist continues:—"Hitherto Seattle has handled the greater part of the north-bound business to Alaskan points, & this has been due to that city's position as the terminal of all, or nearly all, lines of communication from across the line. The probability now is that another line of communication, much quicker than that by way of Seattle, will be established & it will be utilized by Portland, San Francisco & other points in the U.S. The Southern Pacific will seek its share of this northern business, & the Chicago, Burlington & Quincy, which is now reaching out for western business, will see in it a profitable field. The route to which we refer is that which will be

established by the construction of the Port Angeles Eastern Ry., the extension of the Esquimalt & Nanaimo Ry. to the north end of Vancouver Island, & the establishment of ferry connection between these two railways. When this route has been established, there will be a fleet of steamers plying from the north end of Vancouver Island to points in Alaska as well as to points on the mainland of B.C. President Shaughnessy, of the C.P.R., recognizes the importance of the railway to the north of the Island, & when in Victoria, a short time ago, expressed his belief that the people ought to make a determined effort to secure its construction. Other well-known authorities in transportation matters entertain the same view. We are strongly of the opinion that a railway to the north end of the Island, with branches to points on the West Coast, & ferry connection with the Port Angeles Eastern, is the most important project that can be suggested in the interests of Victoria, except a new transcontinental line following the proposed route of the British Pacific." The Colonist urges the people of Victoria to secure the necessary ferry connection, & to use their influence towards procuring the granting of a subsidy from Parliament at its next session.

Railway Committee of Privy Council.

Metropolitan Ry. Co. & C.P.R.—On Jan. 9, for the first time in the history of Canada, the Privy Council heard an appeal from a finding of the Railway Committee of the Privy Council in the case of the proposed connection between the Metropolitan Ry. & the C.P.R. at North Toronto.

H. L. Drayton, for the City of Toronto, stated that by reason of agreements between the city, the county of York, & the M. Ry. Co., the latter was empowered to use the section of Yonge St. affected. The franchise of the county line provided for the construction of the line under limitations, & the city now stood in the same relation to the Co. as the county formerly stood. An act was passed by the Ontario Legislature changing the name of the Co. to the Metropolitan Ry. Co. The Co. certainly had the right to extend its line north, but under the restrictions mentioned. The first section of the act provided that the Co. should be a street railway purely.

B. B. Osler offered to shorten the argument by putting in a factum if the other side would do the same. The suggestion was accepted. Proceeding with his argument, he asked whether the Railway Committee intended to interfere with Provincial legislation. Even if the Railway Committee had jurisdiction, should they exercise it? The Metropolitan Ry. now asked for 50 ft. more of the highway. The Order in council recited the consent of the City Council, although the Council had formally repudiated the consent before the Order in council was taken out. The order had been made under the new section, 173 of 56 Vic., providing against the crossing or joining of railways without the consent of the Railway Committee of the Privy Council. The difference that was made out was that between Provincial & municipal railways. The intention seemed to be to take up Yonge St. for 30 miles by a branch of the C.P.R. Those owning frontages there had protested, & would doubtless continue to do protest. He contended that the Railway Committee had not the power to unite a municipal & a Dominion railway, & expressed the belief that the consent of the city was necessary to the carrying out of any junction.

W. Barwick, for the Metropolitan Ry., explained the route of the roads, & stated that the municipalities along the road had all sent representatives asking permission that the C. P.R. & Metropolitan be allowed to carry out the junction. The plan of the road when first

built in 1884 had been accepted by the County Council. The City had certainly given its consent, which it now sought to rescind. All the freight business was now done on the street, whereas if the connection were made the C.P.R. property would be used. The Metropolitan was ready to make any fair arrangement, & the Railway Committee's order was eminently fair. It was unfair to say that the Metropolitan sought to become a Dominion railway. The Co. sought to get to the Toronto market, & desired to connect with the C.P.R. solely on that account. The Hamilton, Grimsby & Beamsville & the radial railways connected with the steam lines. The Toronto Ry. successfully fought the Metropolitan's project to have a connection made. The Market Committee of Toronto had consented to have trolley trains brought around the city by steam locomotives. The City Council committee, however, had laid down terms which the Metropolitan had not accepted. The City demands included a single fare to the cemetery. The aldermen had also asked that all freight carried by the Metropolitan should be unloaded in the City. The City Council had sent a deputation to lay the City's case before the Railway Committee with general instructions. Mr. Fullerton, for the City, certainly signed the consent to the order. Afterwards the City passed a by-law repudiating the action of its own counsel. The whole trouble was over the 1,200 ft. of Yonge St. in the City, over which the Metropolitan trolleys run. The rights which the Metropolitan formerly had it still possessed. In 1896 the Co. was empowered to extend the line to Lake Simcoe, on condition that it should carry freight. The understanding between the Ontario Government & the Co. was satisfactory to both parties. The City sought to throttle the York farmers, & to compel them to pay large market fees. It was nonsense to talk of making Yonge St. a branch of the C.P.R., as the steam locomotives could not pull loads of freight up the heavy grades. The City & Co. certainly made an agreement in 1891, whereby on 24 hours' notice the Co. promised to give up electricity & to return to horse motive power. This covenant could not be enforced, as he had pointed out in Nov. last.

Warden Woodcock, of York, assured the Cabinet that the county was with the Metropolitan in its desire to go into the City. No injury could be done the City by the Government giving the permission. County Councillor Lundy, of East Gwillimbury, endorsed Warden Woodcock's views, & pointed out that the dairying industry would be greatly benefited by the connection. Councillor Evans thought the whole question had resolved itself into a fight between the City & the Metropolitan. There was no fear of destroying Yonge St. Mr. Yule, of Aurora, said that the people of that village had benefited very largely by the Metropolitan.

G. M. Clarke, for the C.P.R., did not think with Mr. Osler that the Railway Committee had not the power to rule as had been done. The Government had every power so to rule. There was no doubt as to the prerogatives of the Dominion Parliament.

Judgment was reserved.

A. O. Norton, manufacturer ball-bearing lifting jacks, Boston, Mass., & Coaticook, Que., has built a 75x35 ft. two-story addition to his Canadian plant, & reports enough orders already booked to keep both plants employed to the maximum of their capacity until April.

Duncan S. McIntyre, who has been well known in the iron trade in Canada for the last 20 years, has been appointed General Sales Agent for the Dominion for the Abbott-Mitchell Iron & Steel Co., of Belleville, Ont. Mr. McIntyre will also continue to act as General Sales Agent for F. E. Came, of Montreal.

Chicago & Grand Trunk Finances.

Since pg. 5 went to press, a Chicago despatch of Jan. 19 states that papers have been filed in the U.S. Court by Dickinson, Warren & Warren, on behalf of S. Borg & Co., New York, bankers, to protect the interests of the holders of the 1st mortgage bonds in the C. & G.T.R. foreclosure suit now pending before that court. Borg & Co. represent directly an interest of £70,000 sterling in the 1st mortgage. The papers are in the form of a petition to the court that they may be made parties to the foreclosure suit, & in the petition are set forth charges that the C. & G.T.R. has been manipulated & that its management has been purposely defective for the purpose of carrying out a plan of financiering inimical to the interests of the 1st mortgage bondholders. E. W. Meddaugh, of Detroit, counsel of the C. & G.T.R., & J. Bell, attorney & counsel of the G.T.R. of Canada, are made parties to these charges, together with the Directors of the G.T.R. The C. & G.T.R. Co., of Michigan, Indiana & Illinois is a corporation separate & distinct from the G.T.R. of Canada. E. W. Meddaugh is counsel for both corporations.

The Canadian Gazette, London, Eng., of Jan. 11, says:—"With reference to the proposed scheme for reorganizing the C. & G.T.R. Co., the trustees have announced that they have obtained the approval of holders of the majority of the 1st & 2nd mortgage bonds, & that receivers have been appointed in proceedings instituted in the U.S. Courts for the purpose of carrying the scheme into effect. Bondholders who have not yet approved of the scheme are requested to deposit their bonds with Glyn, Mills, Currie & Co. forthwith. It is also stated that application is to be made to the London Stock Exchange for a quotation of the trustees' certificates, which carry interest at 4% per annum from Jan. 1. But we are informed by A. Keyser & Co. that they deny the statement of the G.T.R. Co. of Canada that the reorganization committee holds a majority of both 1st & 2nd mortgage bonds, so far as private holders are concerned. The G.T.R. Co. has put in its own

bonds, amounting to 260,000, out of 1,240,000, in the case of the firsts, & 611,000, out of 1,240,000, in the case of the seconds, but Messrs. Keyser say that a very large amount of firsts held by individuals has been deposited with them, & that nearly all the seconds similarly held are now under the control of the Amsterdam committee. The plan will therefore continue to be opposed by the large majority of private bondholders, through their committees."

Manitoba Government Railway Bonuses.

The question of provincial bonuses to railways is exciting a lot of discussion in Manitoba. The new Premier, Hugh John Macdonald, announces that he & his colleagues have discovered that the late Greenway Government during the past year bonused 85 miles of line to the amount of \$148,750, & granted the lines exemption from taxation for 20 years, as follows:—

C.P.R. Bonnet Lake branch, 22 miles, \$38,500.

C.P.R. Snowflake branch, 17 miles, \$29,750.

C.P.R. Waskada branch, 23 miles, \$40,250. Saskatchewan & Western Ry., extension from terminus of Great Northwest Central at Hamiota to Miniota, 23 miles, \$40,250.

The first two grants above mentioned were made by orders-in-council on July 14, 1899, the two last mentioned were promised in letters pledging the Government to secure them. Premier Macdonald also says that after the defeat of the Greenway Government at the polls, & before it relinquished office, an order-in-council was passed guaranteeing the bonds of the portion of the Manitoba & Southeastern Ry., which runs through Minnesota for 42 miles under the name of the Minnesota & Manitoba Ry. Mr. Macdonald charges that these grants were kept secret, & that members of the Greenway Government led the people to believe that the lines to which \$1,750 a mile were granted were being built without Government aid. Ex-Premier Greenway admits that the facts as to the orders-in-council being passed & as to letters promis-

ing aid being given, are as stated, but defends the action of his government as being in line with its policy for years past. He contends that the order-in-council respecting the Manitoba & Southeastern was merely carrying out the requirements of a clause in the contract between the Government & the Co., which was approved of by the Legislature two years ago.

Behind the Engine.

Quinn—Which is the swiftest animal?

DeFonte—Well, I've heard of an elephant making a mile a minute.

Quinn—Preposterous! Where was this wonderful elephant?

DeFonte—On a circus train.

Canada Atlantic Sale Rumored.—Early in Jan. a New York correspondent of a Montreal paper wired as follows:—"Some of the representatives of the Canada Atlantic Ry. were in New York a few days ago. They entered into negotiations with powerful capitalists for the sale of Mr. Booth's system. The price asked was \$14,000,000 for the line & also for terminal facilities in Montreal. These latter, I am assured, were valued at \$4,000,000, & the system itself, that is to say, the railway, at \$10,000,000." J. R. Booth says there is no truth in the story.

The Red Line Transportation Co. is charging the following rates this winter from Lake Bennett, B.C.: Bennett to Cariboo, passengers, \$5; baggage & express, 2½c a lb.; freight 1½c a lb.; Bennett to Closeleigh, or to White Horse, passengers, \$20; baggage & express, 7½c a lb.; freight, 5c a lb.; Bennett to Lower Lebarge, passengers, \$40; baggage & express, 12½c a lb.; freight, 10c a lb.

The L'Assomption Ry., between L'Epiphanie station, Que., on the C.P.R., & L'Assomption, was, as usual, closed down Jan. 7 for the winter, and will probably be reopened between Mar. 15 & April 1.

MANITOBA

Population..... 200,000.
Number of Farmers.. 27,000.

Look Up Its Advantages

Before Going Elsewhere.

CROP OF 1895. A Favorable Season.	CROP OF 1896. An Unfavorable Season.
Average yield per acre.	Average yield per acre.
WHEAT..... 27.86 bushels	WHEAT..... 14.33 bushels
OATS..... 46.73 "	OATS..... 28.25 "
BARLEY..... 36.69 "	BARLEY..... 24.80 "
FLAX..... 16.08 "	FLAX..... 12.30 "

Over 10,000,000 acres in Manitoba that have never been cultivated. Price of land from \$2.50 to \$6.00 per acre. On easy terms.

Settlers coming to Manitoba should always

DROP OFF AT WINNIPEG

for a few days, and secure reliable information about settlements, free homesteads and lands for sale, from the heads of departments located in Winnipeg. For latest information and maps, all free, address

THOMAS GREENWAY,

Minister of Agriculture and Immigration.
WINNIPEG, MANITOBA.

Or

C. H. JEFFERYS,
Manitoba Immigration Agent,
30 York St., Toronto, Ontario

THE FAVORITE ROUTE

To New York and
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GRAND TRUNK RAILWAY
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LEHIGH VALLEY RAILROAD

Route of the "Black Diamond Express," hand-somest train in the world.

Leaving Toronto daily (except Sunday) at 9 a.m., Hamilton 9.55 a.m., arrive New York 10.08 p.m.

Fast Night New York and Philadelphia Express, leaving Toronto 6 p.m. daily, arrive New York 9.13 a.m., Philadelphia 8.56 a.m.

Pullman Sleepers from Toronto, Hamilton and London to New York and Buffalo to Philadelphia.

Call on Grand Trunk Ticket Agents for tickets and further information, or address

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New York.

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All C.P.R. Agents in

MANITOBA,
ASSINIBOIA,
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BRITISH COLUMBIA

sell through tickets to the Old Country, cheaper than if passengers bought railway tickets to New York or Montreal, and then re-booked.

They also sell prepaid tickets to passengers coming from the old country, cheaper than the rate obtainable in Europe, and on favorable terms.

Apply to any agent Port Arthur and west, or to

WILLIAM STITT,

C.P.R. Offices,
WINNIPEG.

Interior of the St. Clair Tunnel. In the illustration on pg. 13, of a flash light photograph showing the interior of this tunnel, it will be noticed there are two slight white marks, which look like apertures, at the far end. These, however, are not at the far end of the tunnel. The flash light photograph was taken from the mouth of the tunnel & looking down the first grade, & what appear to be two apertures are the lights which are stationed at the bottom of the grade & which were some 1,100 ft. away from the car from which the photograph was taken. The first portion of the tunnel on either side is a down grade, & between the two grades is a level stretch in the centre of the tunnel about 1,000 ft. in length. At the bottom of both the down grades are stationed two lights, one on each side of the track.

W. R. Baker, General Manager of the Manitoba & Northwestern Ry., is going to England for a three months trip, accompanied by Mrs. Baker.

SHIPPING MATTERS.

The Montreal Elevator Syndicate.

The agreement between the Montreal Harbor Commissioners & the Conners Syndicate, as detailed in our last issue, pg. 363, was subjected to a few changes, the principal ones being, that the syndicate, with the approval of the Harbor Board, should have the power to vary the proportion of elevators & warehouses on the piers at Windmill Point Basin to the requirements of the traffic, & that the commissioners should not be entitled to assume possession of the property & business of the Syndicate upon giving a year's notice unless it failed to carry out its agreement. These alterations were fully considered & accepted in principle by the Board, & the Dominion Government has approved of the agreement.

C. I. de Sola, Montreal, informs us that he will supply a number of steamships & barges for the Syndicate. The exact number will depend upon circumstances, but he expects to supply about 15. He has already undertaken to have 4 powerful screw steamers & 4 barges ready during next summer & fall, & a number more for next year, & so on until the whole fleet is built. The steamers will be about 245 ft. long, & 43 ft. beam, with a draft of 14 ft. The engines will be of the most modern & most powerful type, capable of driving the vessels 14 miles an hour, & of towing with ease 2 fully loaded barges or more if necessary. The steamers will each have a carrying capacity of about 80,000 bush. of grain. The barges will be very similar to the steamships in dimensions, & will each have a carrying capacity of about 100,000 bush. of grain, so that a steamer & 2 barges, which will make the usual tow, will carry about 280,000 bush. of grain each trip. Mr. de Sola says it is probable that by the time the programme has been completed \$2,000,000 will have been spent in vessels. He is associated with the English firm of Swan & Hunter, Ltd., & with the Cockerill Works, one of the largest steel concerns in Continental Europe. It is his intention to have as much of the work done in Canada as possible, & everything will be done to extend the works in this country as rapidly as circumstances will permit. He anticipates that the Conners Syndicate will result in his carrying out his long cherished hope of creating a large ship building trade in Canada on the most up-to-date basis. He has been aiming at this for a number of years, & believes that the erection of the Conners elevator at Montreal will give rise to a trade between the lake ports & Montreal which will create such a demand for steamers as will justify the establishment of additional ship building works in Canada. It is probable that some of the steamers & barges required will be built in Toronto.

Via French River to Montreal.

On page 6 is a reference to an Ottawa rumor about the C.P.R. contemplating the improvement of the navigation of the French River, & the construction of a grain elevator at North Bay. It is now announced that the improvement of the navigation in question is seriously contemplated by the Dominion Government, the Minister of Public Works having recently made the following statement: "I have been giving my attention to this matter for several months, so much so that I will ask my colleagues to allow me to place in the estimates a pretty large amount of money to improve the French River from its mouth on Georgian Bay to Lake Nipissing. The distance is about 50 miles. It is already a navigable river, & we will only have to improve parts of it to make it a first-class waterway for ships drawing 18 ft. We will require to build dams & a couple of locks, & the balance of the work will be dredging. Just look at the facts. Up to this day the C.P.R. has carried our Canadian wheat to Fort William, where it has been left to its fate, or, in other words, has been taken by U.S. barges to Buffalo. Out of 10 bush. of Canadian grain I do not think I am exaggerating in saying that 9 have gone to U.S. ports. All that will be changed by the project we have now in hand. The distance from Fort William to North Bay is 659 miles. From North Bay to Montreal it is 360 miles. The C.P.R. will undertake to carry with a fleet of its own our Canadian grain from Fort William to North Bay, where it will be transhipped to C.P. cars, en route to Montreal. In other words, the C.P.R. will do what the Canada Atlantic Ry. is now doing from Depot Harbor. If this enterprise is carried out, as I have no doubt it will be, it will bring 25,000,000 or 30,000,000 bush. of Canadian grain to the St. Lawrence route & to Montreal. Of course, the port of Montreal has to be equipped speedily, & that is the reason why I have been urging so strongly on the Harbor Commissioners to go ahead.

"The Government certainly intends to have the works at Montreal gone on with. I am now in communication with the Harbor Commissioners. There is now \$500,000 in the estimates of my Department for carrying out works in the eastern portion of the harbor, where the C.P.R. will locate itself more & more. You will understand that there must be considerable improvements at the port of Montreal, but it must also be borne in mind that it is not a Montreal question, but interests nearly everybody in the Dominion, farmers, merchants, manufacturers, & in a word, all who use transportation."

Marine Work in Toronto.

The following work is in hand at the Polson Iron Works, Toronto:—

For the C.P.R. Co., a machinery outfit for a tug boat for Kootenay Lake, consisting of a fore & aft compound, jet condensing, marine engine, with cylinders 14 ins. & 30 ins. by 20 ins. stroke, having Clyde boiler 11 ft. diam. by 12 ft. long, both built to pass Government inspection for a safe working pressure of 150 lbs.

For the Kootenay Ry. & Navigation Co., an outfit for a stern wheel steamer, consisting of 1 pair stern wheel engines, cylinders 20 ins. diam. by 84 ins. stroke, & 1 locomotive fire box boiler, 80 ins. diam. by 28 ft. long, all built to pass Government inspection for a safe working pressure of 175 lbs.

For Roderick Smith, of West Selkirk, Man., a marine outfit, consisting of one 10 in. by 12 in. vertical engine, with suitable Clyde boiler, all built to pass Government inspection for a safe working pressure of 150 lbs. This outfit is intended for a tug & passenger boat.

For McKeen & Johnston, New Westminster, B.C., a marine outfit for a tug boat, consisting of a fore & aft compound, surface condensing engine, with cylinders 8 ins. by 18 ins. by 12 ins. stroke, & 1 Clyde boiler 84 ins. by 96 ins. long, both built to pass Government inspection for a safe working pressure of 150 lbs.

For T. W. Patterson, of Victoria, B.C., a marine outfit, consisting of a fore & aft compound, surface condensing engine, with cylinders 10 ins. & 22 ins. by 16 ins. stroke, & 1 Clyde boiler 7 ft. 6 ins. by 10 ft. long, both built to pass Government inspection for a safe working pressure of 150 lbs.

Particulars of the work being done in the shipyard of the Polson Iron Works are given on pg. 25.

Toronto Wharf Improvements.

Plans have been prepared for the erection of a wharf, freight & baggage sheds, offices & waiting rooms for the Richelieu & Ontario Navigation Co. & the Hamilton Steamboat Co. The laying of the cribwork has been commenced. The new structure will be known as the Richelieu wharf. It will extend into the bay 357 ft. from the foot of Scott st., & will occupy 54 ft. of the slip between Milloy's wharf & the Toronto Electric Light Co.'s wharf. It will support a shed 264 x 24 ft., divided into two sections—a freight shed, offices, waiting room, ladies' toilet room & passage way for the Hamilton Steamboat Co., & likewise waiting rooms, conveniences, etc., somewhat larger, for the R. & O. N. Co.

On the west side of the new wharf there will be a slip 124 ft. wide, & on the east side one 114 ft. wide. The berth of the str. Toronto will be on the east side & for the Hamilton steamers on the west. The driveway & walk will be quite spacious, & one feature that will be appreciated by passengers will be the walk, separated by posts, to protect pedestrians from vehicles, while walking from the boats to the Esplanade. The freight offices of the R. & O. N. Co. will be the same as at present. The work is to be completed by April 1. The cost is estimated at \$22,000.

W. & R. Freeland, the owners of the property, say that the old & somewhat unsightly coal sheds that stand to the east of the Yonge st. wharf are to be torn down & others erected & that negotiations are pending with the C. P. R. for the erection of an elevator upon the same site.

The Niagara Navigation Company purposes making general alterations & improvements to its present quarters at the Yonge st. wharf.

By the time navigation reopens in the spring the wharves at the foot of Yonge & Scott sts. should have a decidedly improved appearance.

Sault Ste. Marie Canal Traffic.

Not even the vessel owners of the lakes themselves realize the full meaning of the announcement that 25,250,000 tons of freight passed to & from Lake Superior through the canals at Ste. Marie (Canadian & U.S.) during the season of 1899. This, says the Marine Review, is just 4 times as much freight as passed the Sault in 1883, 12 years ago. In 5 years the freight tonnage has been almost doubled, as the figures for 1894 were 13,195,850 tons. The wonderful growth of traffic in this waterway is best shown by the following table giving the number of tons of freight moved & the registered tonnage of vessels for 12 years past:

	Total freight, net tons.	Registered Tonnage of vessels.
1899.....	25,255,810	21,058,347
1898.....	21,234,664	18,622,754
1897.....	18,982,755	17,619,933
1896.....	16,239,061	17,249,418
1895.....	15,062,580	16,806,781
1894.....	13,195,850	13,110,366
1893.....	10,796,572	8,949,754

1892.....	11,214,333	10,647,203
1891.....	8,888,759	8,400,685
1890.....	9,041,213	8,454,435
1889.....	7,516,022	7,221,935
1888.....	6,411,423	5,130,659

The Canadian canal shared only to the extent of about 12% in the record of 25,000,000 tons moved during 1899. The figures are 22,252,139 tons moved through the U.S. canal, as against 3,003,671 tons through the Canadian canal. The full summary of the year's commerce, as reported by the officials in charge of the U.S. canal, is as follows:

ITEMS.	Designation.	SEASONS.		Increase Per cent	Decrease Per cent
		1898	1899		
Vessels—					
Steamers.....	Number	12,461	14,378	15	...
Sails.....	Number	4,449	4,776	7	...
Unregistered.....	Number	851	1,101	29	...
Passengers.....	Number	17,761	20,255	14	...
Tonnage.....					
Registered.....	Net tons	18,622,754	21,958,347	18	...
Freight.....	Net tons	21,234,664	25,255,816	19	...
Passengers.....	Number	43,426	49,082	13	...
Coal—Hard.....	Net tons	540,843	841,281	56	...
Soft.....	Net tons	3,255,607	3,099,606	4	...
Flour.....	Barrels	7,778,043	7,114,147	9	...
Wheat.....	Bushels	62,339,996	58,397,335	6	...
Grain (other than wheat).....	Bushels	26,078,384	30,000,935	15	...
Manufactured & pig iron.....	Net tons	250,170	214,585	14	...
Salt.....	Barrels	301,560	316,336	5	...
Copper.....	Net tons	124,226	120,090	3	...
Iron ore.....	Net tons	11,706,960	15,328,240	31	...
Lumber.....	M. ft. B. M.	805,485	1,038,057	16	...
Silver ore.....	Net tons	n	487	...	...
Building stone.....	Net tons	4,670	39,063	736	...
Unclassified freight.....	Net tons	623,146	587,484	5	...

The U.S. canal was opened May 2 & closed Dec. 18, 1899; season, 231 days. The Canadian canal was opened April 26 & closed Dec. 20, 1899; season, 239 days.

The following table shows the division of traffic between the 2 canals—Canadian & U.S.—& also the division of freight east & west bound:

ITEMS.	Designation.	U.S. canal.	Canadian canal.	TOTAL.
Freight:				
East bound	Net tons.	18,338,253	2,281,281	20,619,534
West bound	Net tons.	3,911,886	722,390	4,636,276
Total freight.....	Net tons.	22,252,139	3,003,671	25,255,810
Vessels.....	Number.	16,480	3,775	20,255
Registered tonnage.....	Net tons.	19,021,489	2,936,858	21,958,347

Notices to Mariners.

The Dominion Department of Marine has issued the following notices:—

No. 93. Dec. 19, Nova Scotia. Pier lights in Halifax harbor.

No. 94. Dec. 20, Ontario. 1. Color of Byng Inlet back range light. 2. Lighted buoys

in the approaches to the Sault Canal. United States, Great Lakes, & connecting waters. 3. Change in position of Galloo Island shoal gas buoy. 4. Increase in height of Sackett's Harbor light. 5. Isle aux Peches, range lights.

No. 95. Dec. 20, P. E. Island. Temporary discontinuance of North Point light.

No. 96. Dec. 23, British Columbia. Hydrographic notes. 1. Wharf at Hope Bay, Pender Island. 2. Rock off Lizard light. 3. Church in Active Pass. 4. Start Bay & Van Anda Cove. Japan. 5. Atoiya-Misaki, light & fog alarm. 6. Shioyasaki, light. 7. Passage of Tokyo, fort no. 3.

No. 97. British Columbia. 1. Change in position of Gallows Point beacon light. 2. Beacons on Sturgeon & Spanish banks replaced. U.S.A., Washington. 3. Shoals in Rosario Strait located.

No. 98. Dec. 29, Nova Scotia. Buoy marking wreck of S.S. Portia.

No. 99. Dec. 29, New Brunswick. Winter arrangements, Quaco buoys.

No. 100. Dec. 30, P. E. Island. Changes in range lights at Casumpec.

No. 1. Jan. 2, New Brunswick. Hand fog horns at Bay of Fundy light stations.

Exemption of U.S. Vessels from Fees.

The following notice was recently issued by the Dominion Department of Marine:—"As a result of an agreement between Canada & the United States, American steamboats, carrying passengers to or from any port in the Province of Ontario, will in future be exempted from the imposition of steamboat inspection, tonnage dues, & also from steamboat inspection fees."

An Ottawa despatch says:—"The collection of harbor light & inspection fees from U.S. vessels was dispensed with by reciprocal arrangement between the two Governments some years ago. Congress had passed a law imposing harbor & lighthouse dues upon vessels sailing from countries exacting similar imposts from U.S. vessels, & accordingly Canada agreed to discontinue the collection of such fees from the U.S. craft using our harbors. This was the position until last season, when, without authorization, a new regulation was issued to have such dues collected in Canadian ports. It is said this action threatened to bring about retaliation, & so an amended regulation has been issued for next season in accordance with the international agreement. If the collection of these dues were continued fees would be exacted on Canadian tonnage in U.S. ports of a similar or more onerous character, & Canadian shipping would stand to lose by the arrangement."

A Dominion order in council has been passed making amendments to the rules for the construction of marine steamboat boilers & formula for calculating the strength of spherical heads of steam drums.

Canada to the Fore.

Dominion Statistician Johnson gives the following interesting facts:—

The first company to build a vessel that crossed the Atlantic Ocean, driven by steam, was a Canadian company, called the Quebec & Halifax Navigation Co.

The first line of ocean steamers, the Cunard line, was originated by three Canadians—Jos. Howe, T. C. Haliburton & S. Cunard.

The first ocean service to Montreal was the result of the company formed by the five brothers Allan & five others of Montreal, Quebec & Kingston.

Three years before any such vessel ran in Great Britain a Canadian, John Molson, had built & put into the business a steamer to carry passengers between Montreal & Quebec.

The first compound engine ever used in a steam-driven vessel was made in New Brunswick & used by a St. John River boat.

The first screw propeller was the invention of a Nova Scotian, who used it in St. John Harbor in 1834 to drive his schooner.

All the vessels of the Dundee whaling fleet with the exception of the Polar Star, which was wrecked in Hudson's Bay, have now returned from the season's fishing. The Polar Star, after a long & continuous struggle with the ice, beginning in June & ending in Sep., was ultimately left to her fate in an utterly unseaworthy state on the western shores of Hudson's Strait. The vessel encountered fearful gales, & sustained such damage by being repeatedly nipped in the ice that her crew & her cargo, 132 walrus & 4 bears, were ultimately transferred to the Active. The catch of the Active comprised 173 walrus, 60 musk oxen, 30 bears, 30 foxes, 6 wolves & 4 wolverine.

British Columbia Shipping.

R. P. Rithet & Co. say that the past year has been one of steady & satisfactory progress; with a marked improvement in all lines of business. The lumber industry has been unusually active, & the mills engaged in the export trade had all the orders they could handle at remunerative prices, some of the larger mills having had to keep their machinery running day & night for a large portion of the year. The volume of business has been somewhat curtailed, for some months back, by the want of tonnage, but even with this drawback, a very satisfactory trade has been done. The prospects for the future are good; many of the mills have orders in hand to keep them going for probably half the year. Indeed, new business will hardly be entertained for earlier loading than July or Aug. The export price of lumber has recently been increased to a basis of \$10 per 1,000 ft.

The salmon canning business was on the whole fairly satisfactory. The northern canneries did well, & although the supply of raw

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fish on Fraser river was not so large as expected, most of the canners secured fair packs, but at a high cost, owing to the increased price paid to fishermen. The markets for the canned product have, however, been considerably better than in the two preceding years, & packers have thus escaped a loss, which otherwise would have resulted from the season's operations.

The coal output has been all that could be desired. The increased demand from San Francisco & the Hawaiian islands, as well as from other markets, has kept the collieries busy all through the year, & the prospects of continued activity are most encouraging.

We have little to add to the remarks in our last regarding the sealing industry, further than that the recent sales in London gave good results, & that the higher prices obtained have induced owners of a number of vessels, laid up during the past two years, to again engage in the business.

Statutes. Capital \$10,000. Chief place of business, Clark's Harbor, Cape Sable Island.

The Lakeside Shipping Co. has been incorporated under the Dominion Companies Act, with a capital of \$46,000, W. L. Lovitt, of Yarmouth, N.S., & others being the incorporators.

The F. B. Lovitt Shipping Co., Ltd., has been incorporated under the Dominion Companies Act, with a capital of \$12,000, W. L. Lovitt, of Yarmouth, N.S., & others being the incorporators.

Pickford & Black Steamships, Ltd., has been incorporated under the Dominion Companies Act, with a capital of \$600,000, & headquarters at Halifax. The directors are, R. Pickford, W. A. Black & G. W. C. Hensley.

The str. Prince Edward has made her last trip of the season from St. John to Boston in the service of the Dominion Atlantic Ry. It is

are to be of not less than 1,000 tons net register, with accommodation for at least 30 1st-class passengers, with proper accommodation for the transport of mails, with a speed capacity of not less than 13 knots an hour, & fitted with adequate cold storage accommodation, on terms to be arranged with the Minister of Agriculture, similar to those accorded steamships running between Canada & Great Britain.

Province of Quebec Shipping.

A largely signed petition has been presented to the Montreal Harbor Commissioners, asking that the vacancy caused by the death of Harbor Master Capt. Howard be filled by the appointment of Capt. Bourassa, at present Acting Harbor Master.

Greenshields & Co., solicitors, Montreal, give notice of application to the Dominion

Ref to Secretary Bd. of Trade Vancouver Jan 31. 1900.



AT THE CANADIAN PACIFIC RAILWAY COMPANY'S DOCKS, VANCOUVER, B.C.

Other branches of trade have been prosperous, & the outlook for increased development in the various resources of the province is exceedingly bright.

The wharves at Vancouver have been very crowded lately, & it is said that the 500 ft. addition which is to be made to the C.P.R. wharves cannot be completed any too soon.

Maritime Provinces & Newfoundland.

It is said a new steamship line will be started in the spring between Boston & Hawkesbury or Sydney, N.S.

Navigation between Point du Chene & Summerside, P.E.I., was maintained until the end of Dec., which was unusually late.

The Cape Island Steamship Co., Ltd., has been incorporated under the Nova Scotia

reported she has received a southern charter. The Prince George has taken the Yarmouth-Boston route. The Prince Arthur will perform the Boston-St. John service during the winter.

The new str. Glencoe, of the Newfoundland Ry. fleet, is intended for the Labrador service, but during the present winter will run between St. John's & Halifax. Another steamer, the Argyle, will also reach St. John's during the present winter, & will be followed by a third, the Clyde. The Argyle will run between Placentia & Port au Basque, & the Clyde will ply between points on Placentia Bay.

Tenders have been invited for a monthly steamship service, including the carrying of mails, between Halifax & Kingston, Jamaica, calling at Bermuda & Turk's Island. The service is to commence in July next, & to continue for 5 years. The steamships employed

Parliament to incorporate the "St. Lawrence Terminal & Steamship Company," for the purpose of acquiring land, building & operating elevators, wharfs, docks & other works at or near Sorel, or some point on the Richelieu River; & to acquire & operate steam & other vessels, & to build & operate terminal lines of railway to connect with existing railways.

At a meeting of the Montreal Harbor Commissioners, Jan. 4, contracts were awarded for cut stone coping, cut stone for ashler, broken stone, cement & sand for the new wharves. In view of the Engineer's report that the present dredging plant would be fully occupied in the construction of the pier & shore wharf recently commenced, & that the extension of Windmill Point wharf to provide space for elevators, etc., & the building of the shore wharf opposite Bonsecours market, to allow the widening of Commissioners st. at that point, could not be undertaken next summer without

additional plant, the Harbor Improvement Committee recommended that steps be taken to construct an additional powerful dredge, a floating derrick & 4 scows. The report was adopted, it being understood that the Chief Engineer have the specifications for the new plant ready in a fortnight. It was also decided that when the contract for the dredge was given out it should contain a clause to the effect that if it was not constructed before July 1 it would not be accepted. It was decided to build the shore wharves of wood instead of concrete, as by the use of the former material the work would be expedited.

The hotel which the Richelieu & Ontario Navigation Co. has decided to erect at Murray Bay will be on the crown of the hill, within a few minutes walk of the pier. The building is to be shingle built & plastered throughout. The finish is to be natural wood. Electric lighting will be introduced throughout the building, & an artesian well will supply the water. The building will be 2 stories, & will have a length of 460 ft., with a depth of 176 ft., & there will be in the neighborhood of 250 bedrooms. The striking feature of the house is the space devoted to piazzas. On the main floor, & in the centre, the piazza bows out, giving it a width of 60 ft. The piazza is 284 ft. long, extending nearly three-quarters the length of the building, & in no part is less than 24 ft. wide. Another feature of the main floor is the fact that a large share of the apartments open in to one another, & the rooms themselves are each of large size. The main hall, in the centre of the structure, is 60 x 46 ft., the rear portion of which contains the office. There are three dining rooms. One is 90 x 38 ft., one 66 x 40, & a third, which is a private dining room, is 21 x 21 ft. The ladies' parlor is 60 x 35 ft., & there is a waiting room 21 x 21 ft. The other apartments on the main floor include a kitchen 32 x 30 ft., a serving pantry 32 x 16 ft., a bar 31 x 25 ft., a card room 15 x 15 ft., & a very spacious amusement & concert hall. There are also on this floor a few bedrooms, but, of course, the vast majority are on the floor above. The piazza, on the 2nd floor, follows the lines of that on the floor below, & the view from it cannot fail to be very fine, as it is sufficiently high to take in a large part of the surrounding country, as well as the river in front. The hotel will be ready for occupancy next summer.

Ontario & the Great Lakes.

The Brockville Navigation Co. has declared a dividend of 5%.

The final report of the New York State Canal Commission recommends that \$60,000,-

000 should be expended in improving the inland waterway.

The Lake Erie & Detroit River Ry. has secured a contract from the G.T.R. to convey the latter Co.'s coal by the car ferry Shenango from Conneaut, Ohio, to Port Stanley, Ont.

It is said the Dry Dock & Steel Shipbuilding Co. of Collingwood is closing contracts for machinery that it will lay the first keel early in May, & that it has orders in view for several steamboats.

A successful trial has been made of the electric plant & lights of the Soulages Canal. The plant will furnish light & power to open bridges & lock gates. All locks, bridges & offices will be connected by telephone.

The Ottawa Forwarding Co.'s screw steamer Welshman is being practically rebuilt at the canal basin Ottawa. New machinery will be installed, and the present engines will be replaced with ones a third stronger.

The Hamilton Harbor Board has suggested to the Dominion Department of Public Works that auxiliary power be provided to swing the bridge at Burlington Beach in the event of any accident to the line of the Radial Electric Ry.

The Montreal, Ottawa & Georgian Bay Canal Co. has given notice of application to the Dominion Parliament to amend its acts by increasing the number of directors & extending the time for the commencement of the construction of the canal.

Toronto Harbor was frozen over on Dec. 29, 1899, 16 days later than in Dec., 1898, when ice formed earlier than in any year since 1887, & the harbor was not open until April 8, 1899. Ice covered the bay for 116 days last year, the longest period the harbor had been closed since 1893.

The Rideau Lakes Navigation Co., Ltd., has been incorporated under the Dominion Companies Act, with a capital of \$1,000,000, the incorporators being D. Noonan, J. Swift, & H. W. Wilson, of Kingston, Ont., C. R. Church & G. E. Kidd, of Ottawa, & M. Zimmerman, of New York City.

Building operations will be commenced this month at the canal basin at Ottawa on a government dredge. The plans prepared for the Public Works Department call for a vessel similar in build & dimension to the dredges Ontario & Rideau, now in the basin. The cost will probably be about \$12,000.

Adam Mackay, who went to Great Britain to order two steel steamers for the Hamilton & Fort William Navigation Co. has returned to Hamilton. He reports that everything is going well with the construction of the boats. One of them is being built at Dundee, & the

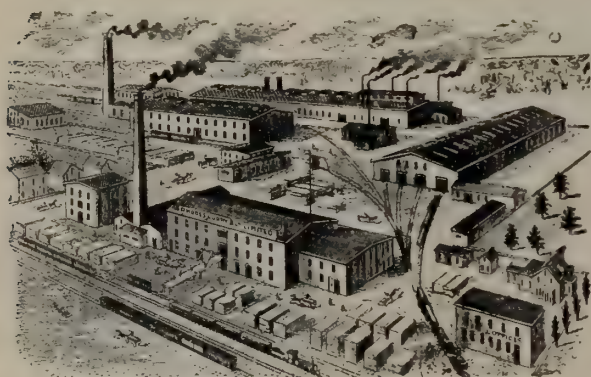
other at Newcastle. They will be ready about June 1, & will be 255 ft. long.

Notice is given of application to the Ontario Legislature for an act to incorporate the Wahnapiatae & Metagamishish Lumber Co. Among other things asked for is the power to construct a canal or waterway between Lakes Wahnapiatae & Metagamishish, in Nipissing district, & to erect a dam at the head of Sturgeon River & raise the waters of Lake Metagamishish.

The Canada Atlantic Ry. Co.'s charter of 5 Menominee line package freighters having expired, & the boats having been returned to the National Steel Co., the C.A. Co. now has only 2 steamers, the Arthur Orr & the Geo. Orr. Negotiations are said to be in progress for procuring 2 additional steamers for next season's grain trade to Depot Harbor, & the Co. will probably build a large steamer in Toronto, so as to have a total carrying capacity for about 1,000,000 bush. of grain.

The Dominion Department of Public Works invites tenders up to Jan. 26 for the works of improvement at the upper end of the Welland Canal at Port Colborne. In a recent interview the Minister of Railways & Canals said: "The channel approaching to the canal is to be deepened to a depth of from 20 to 21, & perhaps 22 ft., & the pier is to be extended also. Parliament has appropriated \$300,000 for this work, but the cost will probably exceed that, for we intend to make a thorough job of it. However, this is all we can spend up to July, & as soon as the contracts are awarded work will be commenced. If the traffic increases, as is expected, further harbor facilities will have to be provided & the harbor further deepened. It is understood, too, that a breakwater is to be erected to protect the harbor, but this comes under the Department of Public Works, & I am unable to say anything about it."

U.S. Secretary Long stated in his recent annual report that negotiations were pending between the U.S. & Great Britain to overcome the treaty inhibition against building warships on the Great Lakes. The negotiations to which he referred were those carried on by the Joint High Commission, which dealt with Canadian affairs. The U.S. members of that Commission put forward a plan for permitting the lake shipyards to build warships, with the understanding that the vessels would not be fitted up & remain on the lakes for naval service. This was accepted by the Canadian delegates, with the additional provision that the armor should not be placed on the warships until after they have reached salt water. This provision would probably have been incorporated in the final arrangement had not the commission failed of an agreement



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.....For Sale.

because of the Alaskan boundary trouble.—Marine Record.

Engineer G. W. Rafter, in charge of the survey for the proposed ship canal from the Great Lakes to the Atlantic ocean, has completed his preliminary work & drawn up his report. The project is to cut a canal 30 ft. deep & 340 ft. wide, which is 3 1-3 times the depth, & 5 times the width of the Erie canal, from Lake Erie to Lake Ontario around Niagara Falls, leaving Lake Ontario at Oswego, through the Oswego river to Oneida Lake, thence through the Mohawk Valley to the Hudson River. A single lock will be 1,000 ft. long, with walls over 50 ft. high. The greatest problem has been to find storage for water to feed this great canal on its various levels, & yet not affect the water supply of manufacturing concerns now using various rivers. Mr. Rafter plans a great dam at Carthage, on the Black River, in Jefferson county, making a lake covering 80 square miles of land to feed the canal. From this reservoir Mr. Rafter has located a canal 90 miles long, as wide as the Erie, to the proposed ship canal just west of Rome, & on the way down has planned a secondary reservoir in the Salmon River. The commission's work also includes a similar survey for a canal of the same character, leaving the St. Lawrence River at the head of the Coteau Rapids & thence into & through Lake Champlain.—Marine Record.

The U.S. War Department is asking Congress for \$20,000 additional for the survey & examination of a great waterway between the Great Lakes & the Atlantic Ocean. Its work involves plans for the control of the level of Lake Erie by dams at Buffalo, the development of the St. Lawrence River, the improvement of the Hudson, & other surveys & examinations. The Deep Waterways Commission asks this \$20,000 in addition to the \$465,000 formerly appropriated. The importance of the commerce of the Great Lakes is increasing every day. The growth of lake marine is a phenomenon. In 1898 it seemed to be too great for the trade; in 1899 the traffic practically swamped it. The Duluth News-Tribune pertinently states: "With more than half the country's tonnage of steamers exceeding 1,000 tons register, on the lakes, any attempts to deny that the welfare of the lake trade is vital to the nation would be futile. The traffic through the 'Soo' canal dwarfs the business of the great Suez waterway. Whatever may be the fig-

ures of one season in lake trade, the next is sure to surpass it." With such a showing it is not likely that the demands of the Deep Waterways Commission will be overlooked by Congress, even though the river & harbor bill should fail.—Marine Record.

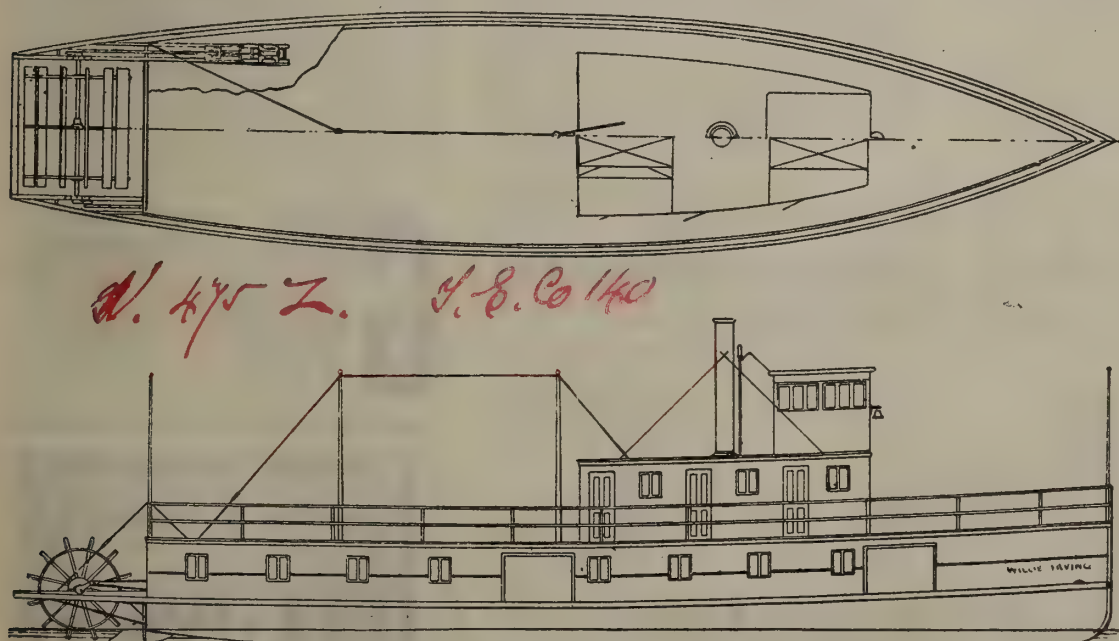
Yukon & Northern Navigation Matters.

A Dawson correspondent writes: "One of the curious features of this winter's trip from White Horse to Dawson is the large number of scows frozen in the ice. Over 100 may be counted on the trip down. Many of these are deserted, some almost snowed under, but each is laden with freight. The commanding officer of the Northwest Mounted Police has given instructions that the police at the various river posts patrol these scows, & thus prevent looting."

F. E. Burns, who is interested in the Alaska Steamship Co. & has been for a year or two on the Yukon interested in navigation, is quoted as follows: "The flyer which we are to add to the Skagway-Puget Sound run, is being built on the Atlantic coast under the direction of W. Oakes, president, & George Lent, another member of the Co., & formerly chief engineer of the Dirigo. The ship is to be a twin screw, triple expansion craft. She will have accommodation for 250 passengers & 800 tons of freight, & will enter the trade to compete with the fastest comers. The fleetest craft on the run to-day makes 14 knots. Our craft will make 18 knots. She is being constructed with an eye to having her especially adapted to the Sound & Skagway run. The saloon will sweep from stem to stern & be surrounded by the cabins, which will be so arranged that one door will open from each room into the saloon & one on the promenade deck, sweeping about the outer part of the ship. She will be practically the same as the City of Seattle on the passenger deck, with the exception of the room for the promenade all around the outside, and the addition of doors opening to the outside. The main deck will be arranged for the convenient handling of cattle as well as freight. The hull of the craft will be large in the oval, thus affording greater freight space than found in the sharper bottom, and allowing the vessel to sit higher in the water.

The sudden fall, a little while ago, in the value of their shares may have prepared the

proprietors of the Bennett Lake & Klondike Navigation Co. for a crisis in the affairs of that undertaking. It has come—but combination with other and practically identical interests is a better alternative than a forced liquidation of what are really valuable assets. We can all be wise after the event & to now criticise the policy of the directors would be of no avail in anyone's interests. The board has clearly been misled, we may say deceived, & it should command ready support in its efforts to fix the responsibility for the present disappointing position. That, at least, one member of the local advisory board in Victoria will have to leave is likely; but Mr. Flocton, the Co.'s Manager, appears also to have been considerably in error. He, from time to time, advised the directors of the work done, and of the probable results, & less than a month ago reported to them that the net earnings of the steamers Ora, Nora & Flora amounted to \$103,000. Instead of being able to remit money to England, which he foreshadowed as recently as Nov. 7, he now states that he had underestimated his expenses, & that he requires a considerable sum to be sent from England to enable him to pay pressing liabilities in Victoria, pending the collection of moneys due from the northern stations. Being thus unexpectedly called upon to provide further capital the directors considered whether it would be possible to avoid an assessment of the shares by raising money upon mortgage to provide for immediate requirements & for next season's trade, in regard to which it is tolerably certain that the steamers will again prove their great earning capacity. The assets, however which include a considerable sum due from freight, etc., being in remote parts of Canada, are not available for the purpose of raising a loan, & an outline of the accounts cabled from Victoria unfortunately confirms the Manager's unpardonable inaccuracy. The explicit statement of Mr. Lowles, M.P., to the shareholders showed that amongst other beneficial results, which may be expected, there will be a very large reduction of nominal capital & also of administration expenses. Having regard to all the circumstances the scheme seems just & equitable for all concerned, for to liquidate in view of prospects would appear like an act of commercial suicide. The amalgamation scheme is framed to take over the assets and liabilities of three companies: The Bennett Lake, The Klondike Mining, Trading & Transport, & the Klondike Goldfields, or such of them as decide to join in the amalgamation. The meetings in London on Dec. 27 occupied almost the entire day, & at only one was there any suggestion of a committee being appointed. It is so evident that more can be done by fusion that opposition is illogical. It is proposed to call the new undertaking the Klondike Corporation, Ltd., with an authorized capital of £200,000, or other suitable amount, in shares of £1 each. Shareholders in each of the companies amalgamated, will be offered in exchange for each £1 share fully-paid now held, one share of £1 in the new company credited with 17s. paid up thereon, & having 3s. per share liability. This small amount will be called up in the smallest possible



STERNWHEEL STEAMBOAT WILLIE IRVING, BUILT FOR YUKON RIVER TRADE.

sums, while it is anticipated that holders of considerable blocks of vendors' shares will be unable to avail themselves of this arrangement, to the greater advantage of the other shareholders.—B.C. Review, London, Eng., Dec. 30.

The str. Willie Irving, which was wrecked on the Yukon River above Dawson in Nov. was so typical a boat that a description of her, which is condensed from Marine Engineering, will be of interest. She was built at Portland, Ore., boat & machinery being shipped to Skagway in knock-down shape in such form that the whole was safely transported over the White Pass, & the boat re-erected and launched at Lake Bennett. Her owner, Capt. E. W. Spencer, of Portland, after investigating the dangers of Miles Canyon & White Horse Rapids, decided to take her to Dawson. He was warned that it would mean destruction for the boat & death for the crew, but he had navigated on swift waters before & felt sure of himself & his boat. He knew there was sufficient depth of water, & that safety depended upon maintaining perfect control of the craft. After a few short runs on Lake Bennett & tributary waters to test her machinery & steering qualities, a start was made down the river with a load of passengers & freight for Dawson. The exciting run was made safely without causing a mishap, & he arrived at Dawson with passengers & cargo in fine condition. The receipts from freight & fares more than equalled the entire cost of boat & supplies. At Dawson Capt. Spencer was offered a price for the steamer, & as it represented a clear & quick profit on his enterprise he accepted. Her new owner made 10 trips between Dawson & White Horse Rapids during 4 months last season with receipts of \$127,668.00—an unusual amount for an 80 ft. steamer, even for river service, in a land of high prices. The boat proved to be a large carrier, stiff & speedy, & a close & easy handler in swift water. Her average time on the up river trip was 7 days. When it is considered that no piece or part of boat or machinery or outfit was so heavy that 2 men could not transport it over White Pass, or any timber or section over 24 ft. long, it will be apparent that the construction was peculiar. The upper works consisted of a single cabin the full length from the stem to stern, with pilot house & texas. The cabin floor or main deck was carried 20 ins. below the guard, this being necessary on account of the variable & violent winds that cause much trouble to navigators on Lake Bennett & tributary waters. Some of the details of construction follow: Keel, 1½ ins. by 8 ins., in 4 pieces, butted between frames; frames, 2½ ins. by 2½ ins., bent oak, set at 20 in. centres—when shipped these frames were held to form by wires instead of cleats, to lighten weight & lie together more

compactly: Floors of Oregon pine, 2½ ins. by 2½ ins., bolted to the frames, with 4 screw bolts in each frame: Centre keelson of three 1½ ins. by 8 ins. timbers set on edge & bolted through & through, making it as stiff as a solid stick: Side keelson of two 1¼ in. by 10 in. pieces set on edge, & bolted through like centre keelson: Centre keelson fastened with 2 bolts through each floor stick: Cylinder keelsons 4 pieces 4 ins. by 6 ins. by 20 ft. long: Stem of oak re-enforced with a knee of Oregon pine: Clamps & also sheer 1 in. by 8 ins. Oregon pine: Shelf, 2½ ins. by 2½ ins.: Bilge strakes 2½ ins. by 5 ins.: Cross keelsons 2½ ins. by 2½ ins. every 10 ft., set on top of fore & aft keelsons, with knee at each end bolted to bilge strake, clamp sheer & frame: Deck placed on a level with these cross keelsons; decking of 1 in. lumber laid athwartships, resting on stringers laid on the fore & aft keelsons: Bottom planking 1½ ins. by 12 ins.; Side planking 1 in. by 5 ins.: Transom 2 ins. by 12 ins.; Knees used to strengthen the frame & planking all butted between frames. The vessel is fitted with three balanced rudders. The entire skeleton of the hull was put up with carriage bolts when erecting it at the Portland boat yard. The holes were all drilled full size, but the bolts used were 1-16 ins. smaller in diameter than those put in at final erection, thus avoiding undue strain to the lumber & facilitating taking down. The total amount of lumber used in the completed boat was 8,800 ft., being principally choice Oregon pine, & the results have proven that it was all put where it did the most good. The engines were two 7 ins. by 28 ins. double ported, balanced piston valve, direct acting, stern wheel engines. They were installed with their auxiliary bearings built on to the steel wheel & engine beams. When constructed they were fitted & lined up complete in the builder's shop & run by steam pressure under approximately the same conditions as when installed in the boat. The wheel was 9 ft. 9 ins. dia., with buckets 9 ft. long & 13 ins. wide. There were 12 of these, each 1½ ins. thick. With 200 lbs. steam pressure & 36 engine revolutions a minute the boat attained a speed of about 12 miles an hour. The steel stern wheel shaft was 3¼ ins. dia., in 2 sections, the steel coupling forming also the central paddle wheel flange. Steam was raised in a water-tube boiler which was built for 250 lbs. maximum pressure per square inch. The boiler was fitted with an extra dead fire box for burning wood. Auxiliaries included an outside packed plunger steam boiler feed pump, such as is supplied for use with gritty water, also injector, test pump, sea cocks, bilge syphons, & an independent feed water heater, all arranged with special reference to the service for which the Willie Irving was

built. Another steamer, the Scotia, practically a duplicate of the Willie Irving, was completed last fall for Capt. Spencer at Portland, the machinery consisting of a pair of 7½ ins. by 28 ins. double ported balanced piston valve engines built on to steel wheel & engine beams. This new boat equals, & perhaps exceeds in general efficiency & speed the Willie Irving, & though she is a trifle heavier craft, her machinery represents an increase of about 18% in power. Her actual total weight, inclusive of cabin & upper works, is 59,000 lbs., being just 12,000 heavier than the Willie Irving, the hull measurements of the 2 boats being the same. The Scotia's paddle wheel is 10 ft. 3 ins. dia. outside of the buckets and 9 ft. 4 ins. long. Each of the 12 buckets is 12 ins. wide by 1½ ins. thick.

The Georgian Bay Trade.

In reference to the past season's trade, the Parry Sound Canadian says:—"It has been phenomenal, as far as traffic on the Canada Atlantic Ry. is concerned. From early in the spring, when navigation opened until its close, the boats have been steadily running on the lakes, connecting with the C.A.R. at Depot Harbor & giving employment to a large staff. It is estimated that 12,000,000 bush. of grain have been sent out of Depot Harbor this season, & the elevator now contains another 1,000,000 bush."

The Owen Sound Times says:—"The season of navigation just closed has been prosperous & successful beyond its predecessors in many respects. From a business standpoint it has been the most prosperous in years. Freight has been plentiful & rates high. Another feature for congratulation has been the comparatively few losses compared with last year. Particularly is this feature marked with respect to the local lines. In 1898 the Great Northern Transit Co. lost the steamers Pacific & Northern Belle by fire, & with its sister company, the North Shore Navigation Co., suffered several more or less serious accidents during the season. For 1899, \$100 will cover any injuries the steamers of the Northern Navigation Co. have sustained during the entire season. The C.P.R. fleet has also come through without serious mishap. With the exception of the damage resulting from the conflagration of the Athabasca, in Aug., nothing worth mentioning has happened. The Manitoba sprung her rudder & spent a day in Collingwood dry dock, but the damage was trifling & the trip to Collingwood did not put the big steamer behind in her runs. The Alberta came off clear. The City of Windsor ran on a shoal near Killarney & had to lay up a few days for repairs, but beyond this, had no mishap during the season. The year 1899 will certainly be remembered as one of exceptional freedom from disaster."

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Export Elevator, Buffalo, N.Y.	"	1,000,000 "
J. R. Booth Elevator, Depot Harbor, Ontario.	"	1,000,000 "
Cleveland Elevator Company's Elevator, Cleveland, O.	"	500,000 "
Erie R. R. Transfer & Clipping House, Chicago, Ill.	"	100 cars in 10 hrs.
Manchester Ship Canal Co.'s Elevator, Manchester, Eng.	"	1,500,000 "
Burlington Elevator Co., Peoria, Ill.	"	500,000 "
Canada Atlantic Railway Elevator, Coteau Landing, Que.	"	500,000 "
Northern Grain Co., Manitowish, Wis.	"	1,350,000 "
Union Elevator, East St. Louis, Ill.	"	1,100,000 "
Montreal Warehousing Co.'s Belt Conveyor System.	"	"

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Shipbuilding in Toronto.

The following work is in hand at the Polson Iron Works:—

A 53 ft. open composite steam launch with canopy, fitted with triple expansion engines, 4½ ft., 7½ ft., 12 ft. by 7 ft., & Yarrow boiler, independent air pump & condenser. Framed with steel, planked with B.C. pine, highly finished & richly upholstered. This is for the Rev. Elmore Harris, Toronto.

A 55 ft. 8 in. by 8 ft. by 3 ft. 6 in. composite steam yacht, with enclosed cabin & overhead canopy, fitted with triple expansion engine & Yarrow water tube boiler, independent air pump & condenser, steel frames, B.C. pine planking, hardwood oil finished throughout inside, & handsomely finished, including carpets, curtains, etc.

A 34 ft. stern wheeler, composite construction, with overhead canopy, horizontal engines, Yarrow boiler & feathering wheel. The boat has been built to test the qualities of a new feathering bucket, manufactured & patented by the Polson Iron Works. The essential feature of this wheel is that the buckets are adjustable, so as to be vertical at every position of the revolution of the wheel. A series of experiments have been begun, in order to enable a comparison to be drawn between this wheel & an ordinary radial wheel. These experiments have not been completed owing to the cold weather, but will be carried on in the spring. Sufficient information has, however, it is said, been obtained to prove the immense superiority of this type of wheel, & it is believed that the new wheel is as much of an improvement over the ordinary feathering wheel as the latter is over the ordinary radial wheel.

A composite steam cutter, 36 ft. by 9 ft. by 3 ft., with fore & aft compound engines, & vertical submerged tube boiler. This is for Geo. Gooderham, Toronto.

The composite steam barge, Sir Leonard H. Tilley, which was seriously damaged by fire upon Lake Erie last fall, & purchased by J. & J. T. Matthews, of Toronto, from the insurance companies, is under repair at this yard. The vessel had all her upper works & top sides burned away, & as she was carrying a heavy deck load of cement, the whole of the heavy iron deck beams, stanchions ties & stringers became crushed downwards, whilst heated, by the heavy weight of the cargo, & were so bent, buckled & twisted as to pull the vessel's sides out of shape. The cutting out, restoring the metal, etc., & the ship's hull to the original form, & replacing the various parts constituted a job of no mean importance. This portion of the work, together with some structural changes & improvements, has been completed successfully, & the vessel's framework is now in as good condition as when she was first built. A new steel main deck will be laid, & the new top sides, planking & upper works will be proceeded with immediately, so as to bring her out in time for the opening of navigation. Owing to the exceptionally heavy section in the deck frame in this vessel, the straightening & refitting of her beams, etc., has been a much harder job than that of building a new one for a large lake steamer, but owing to the excellent facilities provided at this yard, the work has been well & quickly done.

All the above mentioned work is from the designs & under the superintendence of W. E. Redway, naval architect, Toronto.

Joliette Station Robberies.—For the third time within the last two years the C.P.R. station at Joliette, Que., has been broken into & the safe blown up, & anything of value that it contained removed. The new station was entered on the night of Dec. 31, the door being forced open & the safe blown up. The tickets & other valuables, together with express parcels were stolen.

A C.P.R. Construction Reminiscence.

We have just come across, in a clipping from a Winnipeg paper of June, 1882, a skit by "the Khan" which is worth reproduction. It may be explained that when the C.P.R. prairie section west of Brandon, Man., was under construction in 1882, Flat Creek, now known as Oak Lake, was the chief yard & supply point. Things got into a very mixed up condition there & one day the newly appointed General Manager Van Horne paid the place an unannounced visit, discharged most of the staff & installed a new lot in about as short a space of time as it takes to write these few lines. This is what "the Khan" had to say about it:

"The C.P.R. up here may very properly be called the innocent railway. The trains run in a kind of go-as-you-please style that is anything but refreshing to the General Manager. It is not for want of officials at the end of the line, goodness knows. There are enough clerks, etc., there to build the road for that matter, if hands run short. Their chief occupation appears to be to trip over one another, & go in search of some person while the train hands go duck shooting in the 'mash,' & the engineers fall asleep. If you go to Flat Krick never want to know. If you want to know anything the officials will look upon you as an enemy of your race sent there by their enemies to torture them. If you 'want to know,' they 'don't know.'

"I don't know,' is a mournful sound which is reverberating through Flat Krick all the time.

"When is the train coming in?"

"I don't know."

"Where is the yardmaster?"

"I don't know."

"Is this Flat Krick?"

"I don't know."

"How long have you been dead and buried?"

"I don't know."

"But when Manager Van Horne strikes the town there is a shaking up of old bones. He cometh in like a blizzard & he goeth out like a lantern. He is the terror of Flat Krick. He shakes them up like an earthquake, & they are as frightened of him as if he were the old Nick himself. Yet Van Horne is calm & harmless looking. So is a she mule, & so is a buzz saw. You don't know their true inwardness till you go up & feel of them. To see Van Horne get out of the car, & go softly up the platform, you would think he was an evangelist on his way west to preach temperance to the Mounted Police. But you are soon undeceived. If you are within hearing distance you will have more fun than you ever had in your life before. He cuffs the first official he comes to, just to get his hand in, & leads the next one out by the ear, & pointing eastward informs him that the walking is good as far as St. Paul. To see the rest hunt their holes and commence scribbling for dear life is a terror. Van Horne wants to know. He is that kind of a man. He wants to know why this was not done & why this was done. If the answers are not satisfactory there is a dark & bloody tragedy enacted right there. During each act all the characters are killed off & in the last scene the heavy villain is filled with dynamite, struck with a hammer, & by the time he has knocked a hole plumb through the sky, & the smoke has cleared away, Van Horne has discharged all the officials & hired them over again at lower figures."

Crow's Nest Pass Electric Light & Power Co.—Davis, Marshall & MacNeill, solicitors, Vancouver, give notice of application to the B.C. Legislature for the incorporation of a company under this name, for the purpose of using & supplying power, light, & heat by compressed air, electricity, water or other motive power; also to construct, maintain,

& operate tramways, electric railways, & ropeways & telephone systems in Kootenay district.

ELECTRIC RAILWAYS.

Maritime Provinces & Newfoundland.

Moncton St. Ry. & Power Co.—G. E. Lovejoy & C. A. Flaherty, of Boston, have been looking over this property, possibly with a view to purchasing.

Sydney, N.S.—D. J. Kennedy has applied to the Town Council for a street railway franchise.

Quebec Electric Railways.

Hull Electric Co.—The Quebec Court of Appeal has reversed the judgment of the Court of Review & confirmed the judgment of the Superior Court in the case of the Ottawa Electric Co. & the Hull Electric Co. By the present judgment the Ottawa Co. is declared to have the right to compete with the Hull Co., the by-law of the city of Hull giving exclusive rights to the Hull Co. is declared to create a monopoly, & the act of the Legislature confirming the by-law is declared to be unconstitutional.

Matane & Little Metis.—Dr. Bouillon, of Matane, has written the press on the subject of an electric tramway for Matane & Little Metis village, calling attention to the fact that, with the exception of two, every municipality from Matane to St. Flavie has voted the right of way & exemption of taxes for the construction of the road in the county of Rimouski. He contends that the construction of an electric tramway from the Intercolonial Ry. passing through Little Metis would leave \$20,000 in each municipality. The population desiring the road is 20,000, & the municipal valuation for that portion of the inhabitants is \$1,250,000.

The Montreal Park & Island Ry. recently gave notice that owing to the increased population of suburban towns reached by its lines, it had decided to inaugurate a freight service over the whole of its system, & had gone to considerable expense in building cars, also a large electric locomotive, & would handle all kinds of freight to any point on its system. The service commenced Dec. 21.

Montreal St. Ry.—The gross earnings are:

	1899.	1898.	Increase.
Oct.	\$145,877.20	\$133,619.63	\$12,257.57
Nov.	133,489.12	125,125.00	8,364.03
Dec.	137,681.19	127,768.38	9,912.81
	\$317,047.51	\$286,513.10	\$30,534.41

The Quebec Court of Appeal has dismissed the appeal & confirmed the judgment of the Superior Court dismissing the action in the case of J. A. Bell et al vs. the town of Westmount & the M.S.R. Co. Plaintiffs sought to set aside a by-law of the town of Westmount, & the contract passed under its provisions, for the purpose of enabling the M.S.R. Co. to operate its railway within the limits of the town.

It is expected that the dispute between the city & the Co. respecting the removal of snow from the streets will be amicably settled.

It is said the directors are considering the question of providing special cars for smokers.

Edward Rooney, a laborer, has been awarded \$150 as damages against the Co. In 1898, while laying tracks, Rooney, with others, was carrying a rail weighing some 750 lbs. Through a misunderstanding as to where the rail was to be dropped, due, plaintiff alleged, to the absence of the foreman, his toe got caught under the rail & was smashed. He sued for \$1,900. The Co. set up a signed discharge in full from the plaintiff as relieving it of liability, while denying that there was any negligence on its part. The court held that the discharge signed by Rooney was understood by him to be a re-

ceipt for his wages while off work, which belief would be induced by all the circumstances. As to the merits of the case, the Co. should have provided tongs for lifting rails, or else a foreman should be stationed in such a position that all the men could see him when dropping a rail, & he should take extra precautions.

W. Pont, foreman of the Co.'s Hochelaga car sheds, has invented a device for removing snow from the tracks. It is a large wing attached to one of the new snow sweepers. The wing is about 12 ft. long, & is attached to the off side of the sweeper near the rear. After the brushes in front of the sweeper throw the snow up off the track the wing comes along & throws it back to near the sidewalk, so that sleighs in crossing the tracks will not throw the snow back on to the tracks again. It is claimed it will also do away with a great deal of shovelling.

Montreal Suburban Lines.—The town of St. Paul, the parish of Longue Pointe, & the village of Beaurivage de la Longue Pointe, give notice of application to the Quebec Legislature for power to secure the construction of electric railways within their respective boundaries, & also to connect with Montreal.

The Montreal Terminal Ry. recently laid down a siding on Davidson St. for the accommodation of the Dominion Cotton Mills Co. Permission to lay it was asked from the City, but the granting of this being delayed, the Co. went ahead & did the work.

Quebec Ry., Light & Power Co.—The Railway Committee of the Privy Council having granted permission to the Co. to cross the C.P.R. track, the extension from Aqueduct St. to St. Charles Cemetery is being operated. Everything has been purchased for the electric conversion of the steam road, with the exception of the copper required for overhead construction & feeders, & the work will be pushed to completion as soon as weather will permit in the spring. (Oct., '99, pg. 306.)

Ontario Electric Railways.

Brantford St. Ry.—At Osgoode Hall, Toronto, Jan. 3, judgment was given in the case of Meyers vs. this Co., on motion by plaintiff to set aside judgment of non-suit entered by Boyd, C., at Brantford, & for a new trial. Action for damages for injuries sustained by plaintiff, whose team of horses was frightened by a motor car of defendant. The team driven by plaintiff was stopped at a G.T.R. crossing to allow a train to pass, & plaintiff then waved his hand to the motorman of an advancing motor-car of defendant, with the alleged intention of stopping it; the car, however, did not stop, & the team ran away. It was also alleged that the motorman, meeting the same horses two weeks previously, & observing their fright, stopped the car to allow them to pass. It was contended for defendant that plaintiff had not shown any negligence on part of defendant, which was operating its line with reasonable care, & that the trial

judge was right in holding that, under the circumstances, no cause of action was shown. Held (Street, J., dissenting), following & applying the law as laid down in Ellis vs. Lynn & Boston R.R., 160 Mass., 341, that the case was improperly withdrawn from the jury. The fair inference from the evidence is that the motorman saw that the horses were becoming frightened by the moving car, & were likely to become unmanageable, & that he saw the signal to stop & understood it, & it was therefore his duty to do what he reasonably could to avoid the obvious danger.

Per Street, J.—It can hardly be held that a motorman is bound to observe & remember, in addition to his other duties, the behavior of all the different horses he may pass in the course of a fortnight upon the streets of a town. There is nothing in what the motorman here is proved to have done, which a reasonable man might not reasonably & properly have done, & he was not guilty of negligence. New trial directed. Costs of former trial & of this motion to be paid by defendant forthwith after taxation.

Fort Erie to Chippawa.—On Dec. 21 we were officially informed that the Ontario Government had approved of the terms arranged between the Commissioners of Niagara Falls Park & the Fort Erie Electric Ry. Co., & that an agreement was being prepared in the following terms: The Co. to purchase & dedicate to the Crown all the land that is required along the banks of the Niagara River from Chippawa to Slater's Point, in order to make a full chain in width from the water's edge, where at some points the original reserve is washed away entirely, & at others reduced to a width that is barely passable by carriage. The Co. to construct protective works at all necessary points in order to prevent the chain reserve from further erosion by ice or water. The Co. to lay its rails on the easterly or river side of the reserve, & the roadbed, track & equipment to be approved by the Commissioner of Public Works. The Co. to construct, grade & properly form & roll to hard-finish the new road to the west of the railway for vehicular & pedestrian traffic, which is to have a width of at least 40 ft. from the railway track; also to construct bridges, culverts & openings to the water in a manner to be approved of by the Commissioner of Public Works. The Government & the Park Commissioners to have full access to the water lots over the railway & farmers & owners of properties along the line to be allowed to have the existing rights for watering stock, &c., the lease to be for 20 years. The Co., in addition to acquiring & dedicating the chain reserve to the Crown & protecting the shore line, to pay annual rental for the first 7 years of \$1,000 a year; for the next 3 \$1,200; for the next 5 \$1,500; & for the next 5 \$2,000 a year. The time limit for the completion of the work has not been determined, but it is expected to have the line built during 1900, so as to handle traffic for the Pan-American exhibition at Buffalo. The general promoters of the scheme are B. & E. Baxter, Interna-

tional Bridge, Ont., & Manager Fernyear, of the Westinghouse Electric Co., Buffalo. They have New York connections interested with them, but the Commissioners are not yet at liberty to give the names. (Nov., '99, pg. 336.)

Galt, Preston & Hespeler St. Ry.—W. E. McBride, of Galt, was awarded \$10 damages by a jury at the quarter sessions in Berlin, Dec. 13, in his \$200 action against this Co. for alleged wrongful ejectment from one of the Co.'s cars. The Co.'s counsel contended that it was not a case for a jury, & this is now under consideration. The question of costs remains to be argued. The plaintiff states that he paid his fare, while the conductor is equally certain that he did not. In this connection the Co. says that the dispute is between McBride & the conductor.

The Hamilton Consolidated Lines.—C. K. Green, Manager of the Hamilton Radial Electric Ry., has been appointed Traffic Manager of the three electric railways recently consolidated by the Cataract Power Co. J. B. Griffith, Manager of the Hamilton St. Ry., has been given the management of the purchasing department for the consolidated lines.

J. Patterson, the chief promoter of the consolidations, has written a letter to the press in regard to right of way for the proposed road to Berlin, Galt & Waterloo, & the other to Guelph & intervening points. He says: "The road to Guelph is intended to give a service each way each hour, & in order to do that the Co. proposes building a road equal to any railway in the country, except in the matter of gradients. The cars on this road must make the through trip in 50 minutes & return in the same time, so that 2 trains will complete the service & give 16 trains each way every day, carrying both passengers, freight & express matter. Similar arrangements will be made for alternate trains to Galt, Preston & Hespeler & to Galt, Preston, Doon, Berlin & Waterloo, & an hourly service at all times provided for, in addition to the trains that may be necessary for the handling of heavy freight. The line will be double-tracked until the top of the high ground some distance back from Rock chapel is reached, so that all cars going up grade will run on one track, & all down grade on the other, avoiding to a very great extent danger of accidents.

"This is the reason of double tracking as much as the fact that at each hour cars from both lines must pass each other in the near vicinity of the city, & delays on the sidings cannot be made up to any extent on the running time. Any one can see that if we are to provide any such service as we propose—one that will appeal to every business man as superior by 500% to anything ever offered within their memory—it will be absolutely necessary that we can get in & out of the city at a fast rate, & that we do not have to stop for every farmer's team we meet on the road. This is also why we wish to get the Dundurn route for fast running, & why we do not in any case use the highways through the whole

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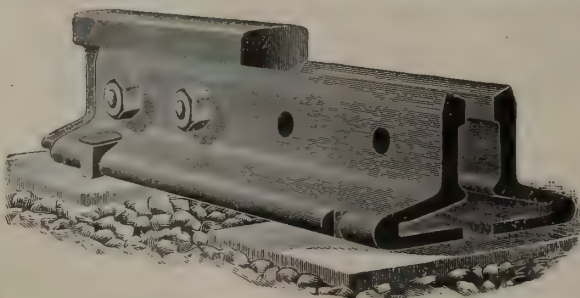
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length of the lines except in passing through towns, cities or villages. Hamilton, for railway purposes, is unfortunately situated at its western extremity, & there are only two routes that can be used. One is at the north of Dundurn & the other along York st., leaving it east of Dundurn, & buying a strip of ground as straight as possible to Vine st., or widening York st. to Queen & then purchasing private right of way. No line having abrupt curves will be taken into account & there must always be a clear lookout for a considerable distance ahead or speed cannot be maintained, & the time-table would require exactly double the number of cars, men & expenses, & very nearly double the amount of power."

After referring to previous attempts to get this railway connection, he says:—"Our Co. proposes giving a service every hour each way to all the towns, cities and villages on these lines at one-third the present cost, bringing a population of over 60,000 within as

ed for through Dundurn Park, & it has been suggested to widen York St. so as to permit of two tracks being laid on it. It is not expected the matter will be settled until the new City Council gets to work. (Nov., pg. 336.)

Hamilton, Grimsby & Beamsville Electric Ry.—The finances of this Co. are said to be in such excellent shape that the directors propose to distribute a large block of stock among the shareholders, if the latter so agree at the annual meeting to be held in Jan. The authorized capital of the Co. is \$200,000, but, so far, only \$112,000 has been issued. The proposition is to distribute \$38,000 of stock pro rata among the present holders.

The London St. Ry. employees' strike has died of old age. By way of letting themselves down easily, the committee say, "they desire the public to use their own judgment as to riding in the cars during the winter months, assured that hundreds will not ride at all un-

made to the Ontario Legislature for an act enabling the M.R. Co., to run its cars over the tracks of the Toronto Ry. Co. for the purpose of conveying passengers & other traffic to the Union Station, the water front, the city markets & the post office, & such other points in the City, & upon such terms as to traffic arrangements & the making of any necessary changes in the tracks of the Toronto Ry. Co. as may be necessary to accommodate the traffic of the M.R. Co., & as may be agreed upon between the companies, or, in case the companies differ, as may be determined by the Lieutenant-Governor-in-Council.

The illustration on this page shows an electric locomotive recently built for the Co. by the Baldwin Locomotive Works. The general dimensions are:—gauge, 4' 8½"; motors, 4 no. 38b., voltage 500; full load speed, 10 m.p.h.; drawbar pull, running 7,000 lbs., starting 11,000 lbs.; diameter of drivers, 33 ins., wheel base 6' truck, 18' total; journals, 4¼"x8"; width, 7' 8"; length, 21' 6"; height,



ELECTRIC LOCOMOTIVE FOR METROPOLITAN RAILWAY.

short a ride in point of time from Hamilton as Burlington, Dundas or Grimsby are at present. The population of the entire district served by the three roads running out of Hamilton now is less than 10,000, & even at that they are more used for bringing people out of Hamilton than into it. The reverse would be the case with the new roads where almost the entire business would be the bringing of buyers to Hamilton, & the shipment of their purchases out of it. When we ask a reasonably straight right of way from James & Vine streets out of the western part of the city, without turning any corners, we do not consider we are asking anything to which we are not entitled. The cost of the roads outlined will be over \$1,800,000, & the revenue on such expenditure doubtful. Hamilton will be a very great gainer commercially, & unless it can see the way clear to meeting the wishes of the Co. in some way, the project, I regret to say, must be abandoned."

The Hamilton City Engineer strongly opposes granting the Co. the right of way ask-

til a fair settlement is effected, & that hundreds more will only ride when necessity compels them." Next!

Vice-President Smallman distributed \$500 among the employees at Christmas. Those who were in the Co.'s service at the time of the strike & remained loyal were given \$10 each, the others getting \$5 or \$2.50.

Metropolitan Electric Ry.—The motion sought by the Attorney-General of Ontario to secure an injunction to restrain the junction of the C.P.R. & Metropolitan tracks at North Toronto came up in the High Court, Dec. 21. The injunction is asked for on the ground that its completion would make Yonge st., a public highway, a part of the general system of the C.P.R. Counsel for the M.E.R. Co. objected to the hearing proceeding & asked for an enlargement. He had not read the papers filed. He intimated that the action was instigated by the Toronto Ry. Co. Counsel for the Attorney-General denied that the latter corporation had anything to do with the action.

Notice is given that application will be

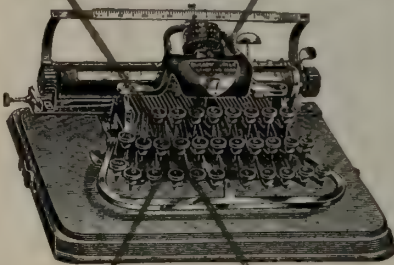
11' 9"; weight, 54,700 lbs. This is the 2nd electric locomotive in use on the line, & it is said to be capable of drawing a 30 ton car up a grade of 9 in 100.

The M.R. Co. is said to have decided on further extensions northward from Newmarket, for which contracts are likely to be let soon.

The system of electrical distribution adopted by the M.R. Co. represents a new practice in the operation of street railways in Canada. This road is, we believe, the first in this country to employ both direct & alternating currents for the propulsion of cars, but the system will undoubtedly gradually grow in favor in connection with the operation of long distance lines. It has only recently come into use in the United States, the Chicago & Milwaukee Electric Ry. being one of the first to be so operated. This road is divided into sections, each section, except the one contiguous to the power house, being operated from a sub-station containing an equipment of transformers & rotary converters. This is

the method adopted by the M. R. Co., but a further step in advance has been taken, inasmuch as both direct & alternating current is generated by the same machine. The direct current passes direct from the generator to the line, & is employed to operate that portion of the road adjacent to the power-house. The alternating current, generated at low pressure, is stepped-up by means of transformers to a high voltage & transmitted to a sub-station 16 miles distant, where it passes through transformers & converters & goes to the line at low pressure direct current for operating that portion of the road remote from the power-house. It is admitted that this system of electrical generation & distribution has many advantages, as, for instance, making at once available direct current for use in the 3-wire system without passing through auxiliary machines. The alternating current, however, in order to be suitable for service at a distance, must be raised in pressure by means of transformers. This system is, therefore, open to the objection—perhaps over-balanced by its advantages—that it necessitates an expensive station equipment because of the rotary converters & transformers required for changing the pressure & kind of current. There is reason to expect that this object will eventually be overcome in some way, probably by the introduction of machines capable of generating both direct & alternating current at the desired pressure, or, in other words, by high voltage alternating & low voltage direct current generators. This would obviate the necessity for auxiliary apparatus in the generating station. The certainty of the rapid extension of inter-urban electric railways in this country makes of paramount importance the question of the most practicable & economical system of operation.—Canadian Electrical News.

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RIVER ST. CLAIR RAILWAY BRIDGE AND TUNNEL COMPANY.

NOTICE is hereby given that application will be made to the Parliament of Canada, at its next session, for an Act to extend the time limited for the commencement and completion of the undertaking of the River St. Clair Railway Bridge and Tunnel Company, to add new provisional directors in place of those deceased, and to authorize the said Company to construct, maintain, work and manage a railway bridge across the River St. Clair, as may be found most suitable for railway purposes, from some point in the Township of Moore, in the County of Lambton, towards the City of St. Clair, in the State of Michigan.

KINGSMILL, SAUNDERS & TORRANCE,
Solicitors for the Applicants.

Dated at Toronto, this 19th day of December, 1899.

CANADA SOUTHERN BRIDGE COMPANY.

NOTICE is hereby given that application will be made to the Parliament of Canada, at its next session, for an Act to extend the time limited for the completion of the undertaking of the Canada Southern Bridge Company, and to authorize the said Company to construct, maintain, work and manage a railway bridge across the Detroit River for railway purposes, from some point at or near the town of Amherstburg, in the County of Essex, towards the island of Grasse Isle, in the State of Michigan, in the United States of America.

KINGSMILL, SAUNDERS & TORRANCE,
Solicitors for the Applicants.

Dated at Toronto, this 19th day of December, 1899.



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Niagara Falls Park & River Ry.—Notice is given that application will be made to the Dominion Parliament for an act to enable the Buffalo Ry. Co. or other company to be named in the act, to acquire & undertake the franchise, assets & business of the N. F. P. & R. Ry. Co., the Clifton Suspension Bridge Co., the Queenston Heights Suspension Bridge Co., & the Queenston Heights Bridge Co., & of such other companies of a similar kind as may agree thereto.

The Niagara, St. Catharines & Toronto Ry. has placed an order for its entire motor equipment, consisting of six 4 motor & four 2 motor equipment.

Ottawa Electric Ry.—The first car was run on the extension to Britannia Dec. 18, when the track was completed to within about a mile of Britannia. It is expected to complete the extension early in Jan. The Co. has ordered 4 open cars for this line. These will be 50 ft. long, with an aisle down the centre & 14 benches on either side of the aisle. The Co. has purchased 12 acres of land at Britannia for park purposes. (Nov., '99, pg. 337.)

Port Arthur-Fort William Electric Ry.—At a recent joint meeting of the Town Council & Board of Trade of Port Arthur, the Mayor stated that Mackenzie, Mann & Co. would be willing to purchase the electric lighting & street railway, now operated by the town, but the proposition did not appear to meet with approval.

Port Stanley Electric St. Ry.—President Coughell has notified the Elgin County Council that this Co. has been incorporated & intends to operate an electric railway along the London & Port Stanley gravel road, beginning at Port Stanley & extending northward to the boundaries of Westminster township. The Co. is making arrangement with the lessees of the London & Port Stanley gravel road for the construction & operation of its railway along that road through the county of Elgin. (Nov., '99, pg. 337.)

Toronto Railway.—A dividend of 1% for the quarter ended Dec. 31, 1899, has been declared.

The gross earnings are:

	1899.	1898.	Increase.	Decrease.
Jan. ..	\$95,690.12	\$86,502.36	\$9,187.76	.....
Feb. ..	91,860.30	82,402.19	9,458.11	.....
Mar. ..	103,234.88	92,318.42	10,916.46	.....
April ..	95,212.37	86,898.83	8,313.54	.....
May ..	104,806.62	92,670.35	12,136.27	.....
June ..	109,063.18	94,119.32	14,943.86	.....
July ..	116,824.94	104,302.92	12,522.02	.....
Aug ..	123,282.70	110,300.54	12,982.16	.....
Sept ..	137,621.10	118,021.74	19,600.36	\$400.64
Oct.	111,465.37	99,650.16	11,815.21	.....
Nov.	102,502.78	99,734.91	2,767.87	.....
Dec.	119,363.08	108,719.86	10,643.22	.....

\$1,310,927.44 \$1,195,641.60 \$115,285.84 \$400.64
Increase, Jan. 1 to Dec. 30, 1899.

The annual meeting will be held Jan. 17.

The coroner's jury on the death of Mrs. J. E. Rogers, who was killed by a sleigh in which she was riding being run into by a Church st. car last month, said in the verdict: "We find that the fender in use was not the best available; that the speed of the car was so great as to be inconsistent with safety to life, & we find the responsibility for these conditions rests with the general board of management of the Toronto Ry. Co. We find that the motorman did his duty, but there was contributory negligence on the part of the driver of the sleigh." As a result the Crown Attorney has instituted proceedings for manslaughter against the City Engineer, on the ground that he failed to regulate the speed of cars on Church st., also against J. Gunn, Superintendent of the T.R. Co. & against the motorman & driver of the sleigh.

Toronto Suburban St. Railway.—A special general meeting will be held in Toronto Jan. 24, to sanction amendments to the by-laws & for the election of directors.

Notice is given that an application will be made to the Ontario Legislature for an Act to

change the name of the Co., & to enable it to amalgamate with or enter into traffic or other agreements with other companies having powers to operate steam or electric railways. To enable the Co. to expropriate lands necessary for right of way or other purposes of the railway. For power to acquire the assets & franchises, & to operate the railway of any company owning or operating electric railways in Ontario. To legalize agreements between the Co. & the municipal corporations of York township, Western Toronto Junction, & other municipalities.

A writ has been issued by J. Broom against the T. S. St. Ry., the Toronto Ry. Co., & the corporation of Toronto Junction, to prevent the Toronto Ry. Co. taking over a portion of the tracks of the T. S. St. Ry. for the purpose of running cars into the town.

Electric Lines in Western Canada.

British Columbia Electric Ry.—The directors have declared an interim dividend at the rate of 4% per annum for the 6 months to Sep. 30, 1899, on the ordinary shares.

A contract has been awarded for the erection of terminal buildings in New Westminster for \$7,445.

The management has under consideration the further improvement of the Victoria-Esquimalt line by the placing on it of large cars such as are used between Vancouver & New Westminster. The bridges will have to be strengthened before the change can be made, & it is proposed that the expenses be divided between the Co. & the city of Victoria.

Dawson, Yukon.—A Vancouver despatch says Dawson is to have an electric railway. A line is being built through the town which will cross the Klondike River & connect Dawson City & Klondike City. If Parliamentary sanction is obtained it is proposed to extend this line up the Klondike River to the mouth of Bonanza Creek, & thence to the forks of Bonanza & Eldorado.

Nelson, B.C., Electric Tramway.—The first cars were run on this Co.'s line on Dec. 21. (Nov., '99, pg. 339.)

Winnipeg Electric Street Ry.—Roadmaster Wallace, of the Toronto Ry. Co., has been in Winnipeg looking into the system of operating, & as a result it is said to be proposed to make some important changes so as to distribute the cars over a wider district & avoid bunching.

Niagara Gorge Ry.—It is said three steel bridges are to be built on this line, one being to replace a wooden trestle near Lewiston, N. Y.

The Sao Paulo Ry., Light & Power Co., Ltd., incorporated under the Ontario Companies Act., has had its name changed to the Sao Paulo Tramway, Light & Power Co., Ltd.

London, Eng., Electric Railway.—A London cable says that the English metropolis has decided to adopt the underground electric street car system, such as is now in use in Washington, Boston & New York, & will use American-built and American-equipped vehicles. The County Council has taken steps to appropriate about \$15,000,000 to install the system.

Demerara Electric Co.—A Georgetown, Demerara, cablegram of Dec. 25 says:—"The application of the Demerara Electric Co. for license to construct & operate electric tramways & lighting plants in this city has been granted on terms satisfactory to the Co. The capital stock of the Co. is \$850,000. The directors are Sir Wm. Van Horne, Senator Drummond, A. Kingman, J. Hutchison, W. B. Chipman, Montreal, & Senator McKeen & B. F. Pearson, Halifax." Fourteen miles of track are to be laid, & it is expected to have the whole line in operation this year.

Havana Electric Railways.—A New York despatch of Dec. 21 says:—"All the street railway interests in the city of Havana were consolidated to-day at a meeting in the office of the Havana Electric Ry. Co. in this city, thus ending a contest begun more than a year ago. In Dec., 1898, the International Bank of Paris, Hanson Bros., of Montreal, & Col. G. B. M. Harvey & F. S. Pearson, of New York, known as the Harvey syndicate, acquired all of the existing railway properties. There was in existence at the time one other concession known as the Torre Pla concession, covering about 12 miles of streets, the title of which was claimed by the American Indies Co., comprising those of the Ryan, P. A. B. Widener, R. A. C. Smith, Sir Wm. Van Horne, W. Mackenzie & others. The Harvey syndicate also claimed to own the true title to this concession. Litigation was begun by the two parties, & has been continued through the year without promise of adjustment for some time to come. In view of this state of affairs, Col. Harvey, on behalf of his Co., began negotiations to bring about a settlement, which was finally effected by complete consolidation to-day. Under the terms of the arrangement the Havana Electric Ry. Co. acquires all the rights & shares of stock of the Havana Traction Co., to which the American Indies Co.'s claims had been assigned, & the Havana Traction Co. becomes part of the Havana Electric Ry. Co. The electric company reimburses the owners of the traction company for their expenditures, & turns over to them a certain proportion of interest in the united company. Work was begun by the electric company several months ago, & it is now expected that a complete system of electric traction will be in operation by June 1 next."

General Telegraph Matters.

There is a talk of an extension of the Dominion Government telegraph line from Cheticamp to Meat Cove, Cape Breton.

The C.P.R. Co.'s Telegraph has opened offices at Elora, Fergus, Hillsburg, Erin, Alton, Cheltenham, Inglewood, Cataract, & Belwood, Ont.

From London, Eng., to Vancouver, 6,000 miles, a cable message costs 1s. 6d. a word, but from London to Bombay, 6,390 miles, the charge is 4s. a word.

The Commercial Cable Co.'s capital is to be increased \$5,000,000, of which \$3,500,000 will be issued to the present shareholders at par, in the proportion of 1 new share for every 3 old shares.

Complaints come from Nicola, B.C., as to delay in starting the operation of the Dominion Government telegraph line between there & Kamloops. It is said the delay is partly owing to a movement to have it operated as a telephone line instead.

A petition is being circulated asking the Dominion Government to increase the telegraphic facilities & trails on the West Coast of Vancouver Island, the object being to provide for ready communication in cases of shipwreck & other emergencies.

Efforts are being made to stir up the Board of Control of the Pacific cable to take some decisive measures. Now that the Board has been appointed, the course is clear for the preparation of specifications & the calling of tenders to ascertain the cost. No survey is necessary, this work having been effectively done by H.M.S. Egeria.

Reference was made in our last issue, pg. 376, to the agitation in Prince Edward Island in regard to the Anglo-American Telegraph Co.'s service. There are, of course, two sides to the question. The A.A.T. Co. does not charge 50c for a message to Nova Scotia, New Brunswick, Quebec & Ontario, but col-

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" " \$3,000 " " " " " "	7 00
" " \$4,000 " " " " " "	9 00
" " \$5,000 " " " " " "	10 00
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- 4.—A Total and Permanent Disability Benefit of one-half of face value of policy, with exemption from further payment of premiums or Court Dues.
- 5.—An Old Age Benefit consisting of exemption from payment of premiums and Court dues after age 70.
- 6.—An Old Age Disability Benefit of one-tenth of face value of policy payable yearly for ten years, on being declared totally and permanently disabled by infirmities of age after the seventieth birthday.
- 7.—An Old Age Pension payable during disability, which may be taken as a substitute for the Old Age Disability Benefit.
- 8.—A Burial Benefit of \$100 at death of a Pensioner.
- 9.—A Funeral Benefit of \$50 at death of a member enrolled in Sick and Funeral Benefit Department.
- 10.—The Mortuary Benefit of \$500, \$1,000, \$2,000, \$3,000, \$4,000 or \$5,000.

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At 31st December Each Year.

Year.	Total Membership.	Benefits Paid.	Total Surplus.	Surplus per Capita.	Death Rate per 1,000.
1881	1,019	\$ 1,300 00	\$ 4,568 55	\$ 4 48	4.50
1882	1,134	12,058 86	2,967 93	2 61	11.00
1883	2,210	9,493 68	10,857 65	4 91	4.73
1884	2,558	13,914 31	23,081 85	9 01	4.23
1885	3,642	26,576 99	29,802 42	8 18	7.76
1886	5,804	28,499 82	53,981 28	9 30	4.85
1887	7,811	59,014 67	81,384 41	10 44	5.78
1888	11,800	89,018 16	117,821 96	9 98	6.43
1889	17,349	116,787 82	188,130 36	10 84	5.85
1890	24,604	181,846 79	283,967 20	11 54	5.18
1891	32,303	261,436 21	408,798 20	12 65	6.40
1892	43,024	344,748 82	580,597 85	13 49	6.25
1893	54,484	392,185 93	858,857 89	15 76	5.47
1894	70,055	511,162 30	1,187,725 11	16 94	5.47
1895	86,521	685,000 18	1,560,733 46	18 03	5.67
1896	102,838	820,941 91	2,015,484 38	19 60	5.50
1897	124,685	992,225 60	2,558,832 78	20 52	5.56
1898	144,000	1,176,125 14	3,186,370 36	22 12	5.67

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Or Any Officer or Member of the Order.

lects that amount, having to pay the W.U. or G.N.W., as the case may be, 25c for carrying the message to its destination, the A.A. charging 25c for transmission over its land lines & cable. Maintaining an expensive plant, including 13 miles of 15 ton cable, for a farming community of 90,000, less than one good sized city, who, as a rule, do not telegraph, is not a highly remunerative investment.

The rapid telegraph apparatus of Pollak & Virag, of which accounts have recently appeared in European papers, have been tested in the U.S. Messrs. Pollak & Virag came to America apparently under arrangements with Chicago & other newspapers. On the wires of the W.U. Telegraph Co. between Chicago & Milwaukee, & also between Chicago & Buffalo, messages were sent at the rate of 122,000 words an hour, & in one of the tests the rate is said to have been 155,000 words an hour. This is a higher speed than had been reported in the tests between Buda-Pesth & Berlin. The apparatus is to be tried between New York & Chicago. The sending apparatus used in these tests appears to be similar in principle to that of other "rapid" methods; perforations, in the proper combinations, are made in strips of paper, & these strips are made to actuate the sending apparatus by being rapidly run through a pair of wheels. The receiving apparatus, which is as sensitive as a telephone, moves a mirror, after the manner of the receiving apparatus used on ocean cables, & the ray of light is thrown on a sensitized screen, so that the signals are photographed. Subsequently, the photographic message is written out, as is done with chemical telegraphs.—*Railroad Gazette*.

Western Union Telegraph Co.

The Co. has this year reconstructed its lines of poles between Guysboro & Canso, N.S., between Amherst, N.S., & Painswick, N.B., & between New Glasgow & Antigonish, N.S., in all about 100 miles of heavy cedar poles.

W. E. Earl has been appointed Manager of the W.U. Cable Co. at North Sydney, N.S., succeeding the late W. F. Snyder. Few people, outside of those directly interested, are aware of the volume of business that passes through the North Sydney cable office. The average number of messages is over 8,000 per day, & as high as 11,000 has been reached. Over 50 persons are employed in this office, which is one of the most important in the control of the W.U. Mr. Earl entered the telegraphic service as messenger, at St. John's, Newfoundland, 40 years ago. In 1875 he went to North Sydney, & was made assistant manager. In addition to the quadruplex & duplex circuits already in use, there have been introduced lately into the North Sydney station, two Muirhead automatic recorders, working at a speed of 40 to 50 words a minute over the cables. The Wheatstone automatic duplex is also being prepared between North Sydney & New York over the land lines, & it is expected that 100 words a minute will be achieved.

A number of improvements have recently been made in the office at St. John, N.B. The old gravity battery cells, about 2,000 in number, have been taken out & replaced by two storage battery circuits of 325 cells each, which will be charged from the electric railway power house, & are so arranged that while one set is working the wires the other will be charging. The office has been completely re-wired with the best insulated wire. The 40 lines are taken into the building from the pole in a heavy cable, & are led into modern lightning arresters. The cables have been conveniently arranged according to the latest & most approved system, by which messages are repeated without taking an operator from his work. A new switch board for the storage

battery system has been put up & is equipped with amperé meters, volt meters, automatic circuit breakers, fuse locks, switches, reostats & resisting plant. The instruments have been replaced with modern ones, & other changes made, all calculated to facilitate the business of the office.

On Nov. 25, the interesting experiment of running the W.U. office in Buffalo, N.Y., one of the largest repeating stations in the world, by Niagara Falls power was tried, & it proved an entire success. It is not purposed to run the office & feed the wires which radiate north, south, east & west with the electricity from Niagara Falls, but the W.U. management has put itself in a position to avail itself of the Falls current in case the local supply should for any reason give out. "The Co. has felt for some time," said Electrician A. C. Terry, "that it ought to have some reserve power. So we made arrangements with the General Electric Co. to run into the office 2 wires furnishing a total voltage of 110. Our plant is run by motor dynamos which are supplied with a current from the 3 large generators in the basement of Ellicott Square. Of course it would never answer for a telegraph office like the W.U. establishment in Buffalo to stop operations. If business were suspended for a single hour you know what that would mean. So arrangements were made with the General Electric Co. to run 2 wires underground from Main St. to the basement of Ellicott Square, & thence through 2 large feeders to the motor generators on the 10th floor of Ellicott Square. There we have arranged a switch by means of which the current to the generators can be changed from the Ellicott Square supply to the Niagara Falls supply in an instant."

General Telephone Matters.

The farmers of Grantham township, Ont., have established a local telephone system.

It is proposed to incorporate a company to build a telephone line from Danford to Kazarabazua Station, Que.

A local telephone service has been installed between the various offices of the Northern Pacific Ry. in Winnipeg.

J. H. Goabout has been registered as the proprietor of the Megantic Telephone Co. at Ste. Julie de Somerset, Que.

The American Bell Telephone Co. has declared its regular quarterly dividend of 3%, with an extra dividend of 1½%, payable Jan. 15.

The directors of the American Bell Telephone Co. have decided to turn over the Co.'s assets to the American Telephone & Telegraph Co.

The directors of the New Brunswick Telephone Co. have decided to construct a long distance line between Fredericton & Chatham, to be commenced early next spring.

It is said that the cable to be laid by the B.C. Telephones, Ltd., to connect Victoria & Vancouver, will be 26 miles long, & will be equal to the longest submarine telephone cable in the world, which crosses the English Channel between England & France.

The Dominion Government has established telephone communication between Partridge Island & the mainland at St. John, N.B. The connection includes a cable of 3,000 ft. from the battery at Negrotown Point to the western wharf at the island, with a pole line to Fort Dufferin.

The British Columbia Telephones, Ltd., controls the following subsidiary companies: The New Westminster & Burrard Inlet Telephone Co., Ltd.; the Victoria & Esquimalt Telephone Co., Ltd.; the Vernon & Nelson Telephone Co., Ltd.; the Kootenay Lake Telephone Co., Ltd.; the Nanaimo Tele-

phone Co., Ltd.; the Canada Western Telephone Co., Ltd.

The Pennfield & St. George Telephone Co., which was only incorporated last Oct., has already constructed lines connecting St. George with Black's Harbor, Pennfield, & Pennfield Centre, N.B. It has been decided to build the line to Pennfield station at once, & the extension of the line to Lepreaux & Bay Bay in the spring is said to have been practically decided upon. There is a talk of extending to St. Stephen, & ultimately to St. John.

The Canadian Telephone Co., which operates near the southern boundary of Quebec, adjoining Maine, was started by people at Sawyerville, St. Malo, Paquetteville & Hereford. The Co. has a capital of \$10,000. The 3rd annual report, issued May 31, 1899, stated that the Co. then had 12 switchboards, 329 subscribers, 371 miles of wire, & 230 miles of poles, with an estimated value of \$16,894.64, & with liabilities of about \$6,000. The Co. has a five years' contract with the People's Co., of Sherbrooke City & vicinity, which gives subscribers of the Canadian Co. the use of the People's Co.'s connection on payment of a small toll, which varies from 10c. for the nearest Canadian Co.'s centrals, to 25c. to Megantic, which is about 75 miles from Sherbrooke. Subscribers to the Canadian Co. pay \$10 a year rent for an instrument with a large free territory. For instance, Bishop's Crossing subscribers get Scotstown, Bury, Cookshire, Sawyerville, East Angus, Marbleton, & Weedon free, but have to pay a small toll to the other centrals.

The Bell Telephone Company.

President Sise issued a circular to stockholders Dec. 5, stating that "at a meeting of directors held to-day, acting upon the power conferred upon them at the annual meeting, Feb. 25, 1892, it was decided to increase the capital of the Co. from \$3,960,000 to \$4,950,000. Each stockholder of record Dec. 7, 1899, is entitled to take, at par, shares of the new stock in the proportion of 1 share for every 4 shares now held. Subscriptions will only be accepted for full shares. Holdings that are not multiples of 4 shares can be adjusted by the purchase or sale of rights, but the Co. will neither buy, sell nor adjust rights. The right to subscribe will expire at 1 p. m. Jan. 20, 1900. All stock not taken by subscriptions then on file at the Sec.-Treas.'s office will be disposed of as the directors shall determine. Stockholders who take new stock must file their subscriptions, & subscribers under purchased rights must file the assignment under which such rights are acquired, with their subscriptions, at the Sec.-Treas.'s office, before 1 p. m. on Jan. 20, 1900. Sellers of rights will not subscribe therefor. Payment at the rate of \$100 for each share must be made at the office of the Co., as follows:—50% Feb. 1, 1900, & the balance in instalments of 25% each at such times as the directors may determine, but not less than 30 days notice will be given of each instalment. No interest will be allowed on payments in advance. Receipts for the amounts paid, bearing interest at the current rate of dividend, will be issued in exchange for each payment, & stock certificates will be issued at the date of the final payment."

The Co.'s new directory for Western Ontario shows a marked increase in the use of the telephone. In Stratford there are over 230 instruments, while London's subscribers number nearly 1,400. There are 221 in Woodstock, 224 in Galt, 282 in Guelph, & 359 in Brantford.

The town of Westmount, a suburb of Montreal, has given the Co. an exclusive right to erect telephone poles with a limitation of taxation of 5 years. The rate to subscribers for instruments will be \$30 a year.

The exchange at Midland, Ont., is being improved; a switch board is being installed capable of handling 50 more subscribers than the present one.

An office has been opened at North Augusta, Ont., & one will shortly be opened at Algonquin, Ont.

The Co.'s new metallic line between Ottawa & Brockville, Ont., has been completed.

The Co. is installing a new & modern type of switch board at Ottawa.

Among the Express Companies.

The Dominion Ex. Co. has opened offices at Windsor Jct., N.S., & Swan River, Man.

The Great Northern Ex. Co. has opened an office in Victoria, B.C., with W. Sloan as Agent.

The Western Ex. Co. has extended its service over the Duluth, South Shore & Atlantic's new line to Bay Mills, Mich.

The Western Ex. Co. has opened offices at Bruce's Crossing, Mich.; Newton, Mich.; & Wyndmere, N.D. The office at Mackinac Island, Mich., has been closed.

At the annual meeting of the Dominion Ex. Co., in Montreal, Dec. 21, the vacancy on the directorate, caused by the death of Sir Geo. Kirkpatrick, was filled by the election of General Manager Stout. The officers are now as follows:—President, Jno. Cassils; Vice-President & General Manager, W. S. Stout; other directors, T. G. Shaughnessy, R. B. Angus, T. Tait; Sec.-Treas., H. E. Suckling.

For the handling of mails & the carriage of express matter to Dawson & intermediate

Yukon points during the winter season of 1899-1900, the Canadian Development Co. has established a winter route, with 20 provisioned station houses. The transport service will be carried on by a staff including 4 divisional superintendents, 18 couriers, & 36 post keepers & cooks. Accommodations for travellers will be provided at every station house. By the opening of a trail made by the Dominion Government & the Co., the route between Bennett, B.C., & Dawson has been shortened over 120 miles, the distance by the Co.'s winter route being 443 miles. The express rates for B.C. & Puget Sound ports to Dawson & intermediate Yukon points below Tagish are \$3 a lb. (minimum charge), & to Tagish Post & Atlin City \$2 a lb. (minimum). Single packages not to exceed 50 lbs. in weight & 3 x 2 ft. in size.

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Air Brakes & Fittings Westinghouse Mfg. Co. Hamilton, Ont.	General Supplies The Hudson's Bay Company.	Ship Carpenters' Tools Rice Lewis & Son. Toronto.
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Railroads & Other Things.

At the last meeting of the Canadian Ticket Agents' Association, at Winnipeg, the Second Vice-President, M. McNamara, G.T.R. ticket agent at Walkerton, Ont., read a paper under this title, from which the following extracts are taken :-

It is the railroad especially that has suddenly placed Manitoba & the Northwest in the front ranks of the world's progress. The early settlers in other parts of Canada had to spend their lives in hewing out a home from the forest. But here the magician's wand struck the earth, and suddenly a completely organized community appeared upon the scene. It was the railway that did it. Twenty years ago there was not a mile of railway west of the Red River. And to-day there are within the Province of Manitoba alone nearly 2,000 miles of road, with nearly 300 more under contract for construction. The Territories west of us are developing with equal rapidity, & from the progress being made it is not improbable that some of those now present at this meeting may live to see the day when a serious agitation will arise for moving the capital of this Dominion from Ottawa to Winnipeg. "Westward the march of empire wends its way." The world moves to the west, & Canada is following the natural law of progress. Already it is proposed to make Port Arthur the head of ocean navigation, & I do not doubt that in due time it will become so. Every argument that supports Montreal as the head of ocean navigation at present, applies equally well to Port Arthur, & when the people west of Port Arthur become numerous enough to out-vote those east of Montreal, the canals will be enlarged so as to give the great ocean ships a free course from Liverpool to the head of Lake Superior.

This is a growing time. Everything shows the expansive force of hope & development. Our commerce is booming, & passenger traffic is increasing. Old-fashioned roads that have hitherto taken life easy, are now hustling for business & paying dividends, whilst a man could have nothing better in his pocket than a roll of stock certificates in some of the new ones. They are better than Klondike gold mines, & much easier to work. Our railways have become models of comfort, speed & luxury, whilst the managers are blossoming out into millionaires, & stockholders feel as if they owned the earth. But I regret having occasion to say, that during my connection with the service, I have not noticed any expansion in the commission of ticket agents. Indeed, they have rather shown a tendency towards contraction. I don't know if all the members of the Association have noticed this tendency, but I have been told by some of the older agents that it

is quite perceptible. In other respects the managers treat us handsomely, & indeed, in all respects they treat us like gentlemen. I know that all present take pleasure in acknowledging their courtesy, but on the authority of an eminent statesman now holding a high position in the public service of this country, I have to say that "business is business," & that on a business basis the ticket agents would like to feel that this is a growing time. We don't want to stand still whilst everything else is growing around us. We want to have a patriotic share in the prosperity of our country, & for this reason,

The problem is already acute in the United States, & is on the march toward Canada. If the Government of Canada does not in time assume entire ownership of the railways, an effort at least will be made to have their traffic regulated by a Government commission. The experience of the Intercolonial is not an encouraging illustration of Government ownership, & there does not appear to be any burning desire in the public mind of Canada, at present, to duplicate the experiment. But the idea exists & is growing. It would increase the patronage of politicians, & many honest men really think it would add to the prosperity of the country.

The passenger traffic more immediately affects our interests, & in this respect it is instructive to observe the results of experience in dealing with the theories of reformers. The recent rate war between our two great companies is a striking object lesson in this respect. It is a favorite theory with many members of the press, that if passenger rates were lowered, travel would increase in a degree that would more than make up the difference in receipts. I must admit that I held this view myself. But I hold it no longer. There was at first an increase in travel, but when the novelty wore off, people travelled only when circumstances required, & soon settled down to normal conditions. Comparing the whole period of the cut rates with a similar period since, I find in my own business that whilst the receipts of the latter period were not only larger in amount, the number of passengers was actually greater. This does not take into account temporary boom points, or excursions, but only what may be considered ordinary business. In respect to excursions, that to the Toronto Exhibition each year furnishes the best basis of comparison, and to this we sold fully as many tickets this year as last, though the rates averaged 40% over the cut period. There was more travel from short distances to Toronto & other central points during the rate war, & to these points the railway companies carried a considerably increased number of passengers. But they did not carry enough to make up the difference in receipts, whilst their running

expenses were largely increased. From this experience, I arrived at the conclusion that people don't travel for fun, or from any ardent affection for the railway companies, but only when it suits their own requirements, & covers their own interests. I have lost confidence in cheap rates as a basis for steady business, & feel satisfied that the railway companies are conducting the passenger traffic of the country at as low a rate as would leave any margin for profit. They are not altogether philanthropists, but are certainly giving the public good service at reasonable figures.



W. S. STOUT,

Vice-President and General Manager, Dominion Express Company.

Mr. President, I hope you will call the attention of the general passenger agents to this particular phase of the growing time, for otherwise they may think that we are neglecting the interests of the railway companies in this important particular.

What our newspaper friends are in the habit of calling the railway problem, may, I think, properly receive some attention at a railway ticket agents' meeting, for, although it does not specially affect our interests just yet, it is evident that the exigencies of political agitation will ultimately force an issue or some sort on the attention of this country.

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NEXT ANNUAL MEETING at Montreal, Oct. 17 & 18, 1900.

Canadian Ticket Agents' Association.

PRESIDENT, F. W. Churchill, Collingwood, Ont.; 1st
VICE-PRESIDENT, W. Jackson, Clinton, Ont.; 2nd VICE-
PRESIDENT, M. McNamara, Walkerton, Ont.; 3rd
VICE-PRESIDENT, W. H. C. McKay, St. John, N.B.;
SEC.-TREAS., E. de la Hooke, London, Ont.; AUDITOR,
S. H. Palmer, St. Thomas, Ont.

EXECUTIVE COMMITTEE, W. H. Harper, Chatham,
Ont.; C. E. Morgan, Hamilton, Ont.; T. Long, Port
Hope, Ont.; J. W. Tierney, Arnprior, Ont.; C. C.
Young, London, Ont.

NEXT ANNUAL MEETING at Hamilton, Ont., Oct. 10,
1900.

Canadian Marine Engineers' Association.

HONORARY PRESIDENT, O. P. St. John, Toronto;
PRES., H. Parker, Toronto; 1st VICE-PRES., A. J. Wood-
ward, Toronto; 2nd VICE-PRES., D. F. Campbell, To-
ronto.

COUNCIL, T. W. Good, W. Harwood, R. Binch, To-
ronto; P. J. Carr, Port Dalhousie; J. E. Kane, King-
ston.

TREASURER, H. B. Blowley, Toronto; SECRETARY, S.
A. Mills, Toronto; GUARD, H. Bowler, Toronto; AUDI-
TORS, D. L. Foley, Toronto; E. J. O'Dell, Owen Sound.

Track Supply Association.

PRESIDENT.—F. E. Came, Montreal.
FIRST VICE-PRESIDENT.—R. J. Davidson, Hillburn,
N.Y.

SECOND VICE-PRESIDENT.—W. H. Frisby, Three Riv-
ers, Mich.

HON. SECRETARY-TREASURER.—Acton Burrows, 33
Melinda Street, Toronto.

NEXT ANNUAL MEETING at Montreal, Oct. 16, 1900.

Another matter that does not appear to be
sufficiently dwelt upon in connection with
railways, is the almost absolute safety of rail-
way travel under present conditions. The
old stage coaches of England killed 1 in 1,000
of their passengers. The railway companies
of Canada kill only 1 in 1,000,000. This is
nearly as safe as the position of United States
generals in the Philippine war. But we kill
a great many walking on the track. Ninety
people lost their lives this way in Canada last
year, & 40 more were killed in jumping or
falling off the train whilst in motion. The
railway companies can hardly be blamed for
killing people of this description. If they
have not sense enough to get off the track
when the whistle blows, or to remain in their
seats till the train stops, they are evidently
out of place in this world of sin & misery, &
may possibly be happier somewhere else.

We often hear a good deal about the excel-
lencies of our Ontario system of education, &
due credit is given to the memory of Dr. Ryer-
son & other distinguished gentlemen concern-
ed in its development. But no credit is ever
given to the railway companies for the revolu-
tion they have effected in the science of geo-
graphy. In the old maps it was a laborious
process to trace the way from one point to an-
other. The surveyors seemed to have no
idea of order or system, but put the towns
& villages promiscuously all over the map
in a most disorderly & irregular man-
ner. But all this has been changed by
the railway companies, & now we have
the towns & cities in a straight line direct
from every man's doorstep to wherever he may
want to go. The value of this improvement
can scarcely be over-estimated, & I think it is
but fitting that at a meeting like this steps
should be taken to have the services of our
railway geographers properly recognized by
the Minister of Education.

Railway Cattle Guards in Ontario.

At the instigation of the municipal council
of North Dumfries, the various township coun-
cils in Ontario were invited to send delegates
to a meeting which was held in Galt recently,
the object as stated in the notice being "to
consider the best means of forcing the railway
companies to construct more effective cattle
guards than the new kind recently devised
and now being substituted for the old on
nearly all the lines of railway." Twenty-four
delegates were present. In the discussion
nearly all the speakers condemned the cattle
guards now in use, but did not suggest any-
thing better, though some of them expressed
a preference for the old pit guards. The
most practical remarks were made by J. D.
Moore, M.L.A., who said that before going
before the Railway Committee of the Privy
Council he advised that the deputation should
acquaint themselves with all the facts, for the
committee would be sure to be confronted
with such questions as—in what particular
are the present cattle guards ineffective? If
they are ineffective, why did the railway com-
panies, which usually move forward in im-
provements, change from the old style? Rail-
way companies are generally careful about
such matters, as one accident might cost them
more than the cost of all their cattle guards.
It was resolved, "that as it is clearly
manifest from the expressed views of the
delegates that the cattle guards now being

constructed by the railway companies are
grossly inefficient & totally unfit for the pur-
pose for which they are designed, freely
admitting cattle to the railway tracks as well
as constituting a grave source of danger to
the travelling public, that a committee be
appointed to convey the sentiments of the
meeting to the Railway Committee of the
Privy Council & urge the necessity for
compelling the railway companies to ob-
serve the Railway Act by building guards
that will effectively safeguard the interests of
the farmers & the travelling public."

The Railway Act 1888, sec. 194, &c., pro-
vides that when a municipal corporation for a
township has been organized, & the whole or
any portion of the township has been survey-
ed & divided into lots for settlement, fences
shall be erected & maintained on each side of
the railway with gates, &c., & cattle guards
shall be provided at all railway crossings, suit-
able & sufficient to prevent cattle & other ani-
mals from getting on the railway. In New
Brunswick, Nova Scotia, & P. E. Island, where-
ever a county municipality has not been subdivi-
ded into local municipalities, each improved
or occupied lot of land is to be protected by
fences & cattle guards, &c. After such fences,
gates & guards have been provided, & while
they are duly maintained, no liability shall ac-
cure for any damages, unless the same are
caused wilfully or negligently by the company
or its employees.

Section 271 of the same act provides that
no horses, sheep, swine or other cattle shall
be permitted to be at large upon any highway
within $\frac{1}{2}$ a mile of its intersection by any rail-
way at rail level, unless such cattle are in
charge of some person to prevent their loiter-
ing or stopping on the highway at the inter-
section. If cattle at large contrary to the
provisions of this section are killed or injured
by any train at a crossing the owner shall not
have any right of action against any com-
pany in respect of the cattle being killed or
injured.

The pit cattle guards which were formerly
almost entirely in use were a menace to the
safety of every train, as in case of a wheel
getting off the track & running into the pit
a wreck would inevitably result. They are
also objectionable from a sanitary standpoint,
especially in and near towns & villages, ow-
ing to their holding stagnant water, dead
animals, etc., etc.

The surface cattle guard now used by the
G.T.R. is made of $1\frac{1}{2}$ inch dressed oak, 8 ft.
long, set on edge & kept in position by $3\frac{3}{4} \times 3\frac{3}{4}$
ins. oak blocks. We are informed that it is
of a pattern that has been generally adopted
by the trunk lines in the U.S., after inspec-
tion & approval by various state boards of
railway commissioners & that it is considered
just as effective for turning cattle as the old pit
guards, without the consequent danger to
trains.

The standard cattle guard now in use on
the C.P.R. lines east of Fort William is made
of wooden slats, cut in triangular shape, from
6x6 inch timber, the slats being laid on their
sides, paralld with the rails, and spiked to
the ties about 2 ins. apart. The management
is considering the use of a more effective
wooden surface cattle guard, or the adoption
of some metallic cattle guard.

The surface cattle guards now in use by the
G.T.R., the C.P.R. & other lines in Ontario
are undoubtedly quite sufficient to stop cattle
etc., which may be driven over the crossings.
Probably no guard is sufficient to prevent
stray animals determined to walk the track
from getting there. But these animals should
not be at large & before asking the railways
to provide more efficient guards the municipal
councils should enforce the statutory law pro-
hibiting animals from straying on the high-
ways. Going to the Railway Committee of the
Privy Council at this stage is starting at the
wrong end.

Commercial Travellers' Baggage.

"A Commercial Traveller's" letter published on pg. 1 of our last issue has attracted considerable attention, but we do not think the suggestions it contained are likely to commend themselves to the railway managements. These suggestions were ostensibly made for the benefit of the railways, but the officials of those companies are hardly likely to credit commercial travellers with a desire to benefit the railways without securing a substantial benefit in return. It is probable that from 10 to 25% of the commercial travellers, varying with the associations to which they belong, are what may be called heavy baggage men & carry over 300 lbs. of baggage each. A reduction in the rate per 100 lbs. would benefit them, but charging for every pound of baggage carried by the remaining 75 to 90% of the travellers would certainly not satisfy that large percentage, hence the suggestion is naturally made to reduce the present passenger rate to commercial travellers on eastern lines from 2½ to 2c. per mile, which would apply to all commercial travellers irrespective of the amount of baggage carried, & this combined with the reduction in the cost for 100 lbs. of the excess baggage would be a far heavier reduction than the railway companies would be likely to make up by charging for the baggage & by saving the cost of excess tickets & prepaid certificates. As far as we can ascertain the feeling of the railway managements on this subject it appears to be that the ideas promulgated in "A Commercial Traveller's" letter are not simply to trade even, but to receive considerable to boot.

Mica Boiler Covering.

The Mica Boiler Covering Co. reports having received news from the British Admiralty that the 10,000 sq. ft. of covering which the Co. supplied for use on Her Majesty's new yacht has given great satisfaction in every way. Of course this is very gratifying to the Co., as the Admiralty officials have been most particular as to the quality of the materials used in the construction and equipment of this splendid vessel. Nothing but the finest in every particular has been used on her, & she is supposed to be the most magnificent piece of ship building that the Admiralty has ever turned out. It says volumes for the mica boiler covering that it was chosen by the Admiralty for use on this yacht, after keen competition from every other known first-class covering.

The Co.'s trade with the English railways is rapidly increasing. It has recently shipped from Montreal a number of laggings for the Great Eastern Ry. of England, one of which is to be used on the locomotive to be shown by that Co. at the Paris Exposition. This order was received from the G.E. Ry. Co. by cable.

The M.B.C. Co.'s business has increased so rapidly that it found its Toronto factory totally inadequate to supply the demand, & it has opened a large factory on Ann St., Montreal, but even with the additional facilities, the Co. is kept busy filling orders.

Canadian Ticket Agents' Association.—President Churchill has issued the following circular to members: During our sojourn in the Prairie City in Oct. last, one of the daily papers, in writing of the visit of our Association, made the statement that our objects were purely of a social nature. I think it is undesirable that such an impression should obtain currency, & I take it that our Association was not originally formed with any such intention. As you have done me the honor of electing me your President for this year, I venture to ask your views as to the best method of popularizing the educational or

beneficial purpose. My personal view is that there should be at least two short papers read & discussed annually, such papers to be of an educational or helpful nature. I would also suggest the advisability, in the interest of new & inexperienced men, of a question drawer; all questions to be in the hands of the Secretary at least a week before the annual meeting. Our Association numbers amongst its members many old, tried & experienced agents, & possibly to them such papers & hints would be merely the hauling of coals to Newcastle, but to the large number of men of limited experience occupying small offices, a free discussion of matters connected with the successful conduct of a ticket office would prove of great value. I am satisfied that some such programme as that outlined would tend to the mutual advantage of ourselves & the great corporations we represent; & would serve to whet the appetites of all for the social side of our programme, & that we should appreciate even more fully than heretofore the boundless courtesies which have always characterized our annual gatherings.

RAILWAY FINANCE, MEETINGS, &c.

Algoma Commercial Co.—F. H., B. J. & E. V. Clergue & H. C. Hamilton, of Sault Ste. Marie, Ont., E. V. & W. P. Douglas & F. S. Lewis, of Philadelphia, Pa., have been incorporated under the Ontario Companies Act as the Algoma Commercial Co., with a capital of \$10,000,000, the objects of the Co. being as a contractor, to construct railways & public & private works of all kinds & to equip the same, & to operate any of the works constructed by the Co. except railways; to acquire mines & mining lands, timber & timber lands & other lands & to lease, sell or otherwise dispose of the same, & to manufacture & sell the products of raw materials.

Baltimore Coal Mining & Railway Co.—A meeting was held at Moncton, N.B., Jan. 10, to increase the capital stock of the Co. from \$300,000 to \$1,000,000.

Calgary & Edmonton.—Earnings Dec. 1899, \$18,599.21, against \$13,345.40 in Dec. 1898.

Carrillon & Grenville Ry.—At the annual meeting in Montreal, Jan. 9, the following were elected:—President, S. W. Simpson; Vice-President, H. W. Shepherd; other directors, R. Bolton, J. J. Gibb, R. W. Shepherd & H. Walters. It is said that negotiations are on for the sale of the line to the Great Northern Ry. of Canada. The C. & G. Ry. runs from Carrillon to Grenville, 13 miles, & has a gauge of 5½ ft. It is operated in connection with the Ottawa River Navigation Co.'s steamers.

Cumberland Ry. & Coal Co.—At the annual meeting in Montreal Feb. 14, the following were elected:—President, R. Cowans; Vice-President, Hon. G. A. Drummond; General Manager, J. R. Cowans; Directors, D. Morrice, E. S. Clouston, W. J. Crossen, E. McDougall, W. J. Morrice; Secretary, H. R. Drummond.

Dominion Atlantic.—Net earnings for 1899, \$772,246, against \$644,733 in 1898.

East Richelieu Valley.—It is said negotiations have been completed for the transfer of this line to the G.T.R. The road, which was built in 1898, runs from Iperville to Noyan Jct., Que., 23 miles, & is being worked by the United Counties Ry. It runs through a good district & about 100 car loads of hay per week are being shipped on it. It connects with the Canada Atlantic and the Rutland railways at Noyan, and with the new Rutland extension, which will be completed by June, its acquisition will shorten the G.T. connections with Boston and New York, making it the shortest route to Boston by 26 miles, and the shortest to New York by 16. It will also, it

is claimed, give the G.T. the most complete connection between the Richelieu Valley & Montreal.

The above was current as a rumour in Montreal early in Feb. On Feb. 19 we were informed that in the absence from Montreal of General Manager Hays, who had gone south for a brief rest, nothing was known at the G.T.R. general offices in regard to any such acquisition as above mentioned.

Great Northern (U.S.A.)—The Co. will issue 90,000 shares of preferred stock for the purpose of acquiring 35,000 shares of stock of the Eastern Ry. of Minnesota and 55,000 shares of the Willmar & the Sioux Falls Ry., including Sioux City & Northern & the Sioux City & Western railways. The opportunity is offered to stockholders of record Jan. 29 to subscribe at par for the new stock to be issued at the rate of 1 share for each 10 shares of present holdings. According to impressions current among those acquainted with the G. N.'s policy, it is likely that a further stock increase of \$1,000,000, bringing the total capitalization up to \$100,000,000, will be authorized within the near future. This addition, however, will not, in the light of present probabilities, be offered to stockholders, but rather to employees of the system. The details of the plan are believed to have been worked out, but have not yet been adopted by the directors. Wall Street information has it that the stock will be offered to employees earning \$3,000 or less a year, presumably at par.

The Co. has declared its usual quarterly dividend of 1¼% on its preferred stock.

Great Northwest Central.—At a special meeting of the shareholders at the Union Station, Toronto, President J. W. Leonard, General Superintendent of the Ontario & Quebec Division of the C.P.R., presiding, it was decided to lease the G.N.W.C. to the C.P.R. Co. in perpetuity, & to issue bonds on the Co.'s property which will be mortgaged to the trustees to secure the payment of the bonds. The Co. will make application to the Dominion Minister of Railways and Canals in Ottawa on Mar. 3, for the sanctioning of the lease. (Nov. '99, pg. 321.)

Guelph Junction.—At the annual meeting, Feb. 8, the statement showed that \$7,724.24 had been received from the C.P.R. for the earnings of the line for 15 months to Dec. 31, 1899. The following were elected:—President, W. Bell; Vice-President, Mayor Nelson; other Directors, J. M. Bond, F. Gowdy, Lt.-Col. McCrae, Major Davidson, Aldermen Kennedy & Hamilton. A committee was appointed to act in connection with any municipal committees appointed in connection with the proposed extension of the line to Goderich.

Halifax & Yarmouth.—Notice is given that the Lieutenant-Governor of Nova Scotia in Council has issued a proclamation bringing into effect an act passed at the 1899 session of the Legislature to amend & consolidate the various acts relating to the Coast Ry. Co. of N.S., & to change its name to the Halifax & Yarmouth Ry. Co., Ltd.

Hamilton & Barton Incline Ry.—At the annual meeting, Jan. 16, a dividend of 3½% was declared. The officers for the current year are—President, G. E. Tuckett; Vice-President, J. Dickenson; Sec.-Treas., L. Bauer.

London & Port Stanley.—At the annual meeting at London, Jan. 16, the report showed that the lessee of the road, the Lake Erie & Detroit River Ry., had paid rental according to agreement. The receipts were, balance from 1898, \$205.79, rental, \$12,596.60, which was paid over to the interest account of the city of London. Mayor Rumball, of London, is President for this year, & Ald. Douglass, Vice-President.

Manitoba & Northwestern.—Notice was recently given of a meeting of the 1st mortgage

bondholders, to be held Feb. 15, for the purpose of accepting the resignation of the present trustees, & removing the necessity of any further notice than has been received by the Co.

New York Central Purchases.—President S. R. Callaway has made the following statement:—"The directors considered carefully the possibility of the control of the Lake Erie & Western & Cleveland, Cincinnati, Chicago & St. Louis roads passing into adverse hands. The business interchanged between these two companies & the Vanderbilt system amounts to from \$6,000,000 to \$8,000,000 a year, & the loss of it would therefore be serious. It was concluded that the safest plan would be to buy a majority of the stock of each road, so that the interest would not be very heavy, even if the roads were not able to pay dividends on their own securities. The control of both roads was secured at such price that undoubtedly they will pay at least the interest on the investment, in addition to being profitable feeders to the Vanderbilt system & interchanging business, which, it is hoped, will grow very largely."

Northern Pacific.—President Mellen recently said:—"Including the money from land transactions already completed or pending, the N.P. will have about \$20,000,000 available for acquisitions & improvements. The Weyerhaeuser deal included only timber lands in Washington west of the Cascade Mountains, & brought in about \$6,000,000. We received between \$5,000,000 & \$6,000,000 from lands east of the Missouri river. Then there are \$3,500,000 of prior lien bonds which we did not sell. It has been provided also that the Co. may issue \$1,500,000 worth of bonds annually for improvement work. The N.P. to-day could add to its mileage nearly 2,000 miles without going outside its office for the money. The Weyerhaeuser purchase includes only our patented land, & by no means includes all of

our timber land. The N.P. has been adding to its mileage about 200 miles a year, & will probably continue to do so. It will certainly keep up its improvement work. No very important acquisitions, however, are in contemplation."

The earnings from July 1 to Dec. 31, 1899, were \$17,027,836, against \$15,440,508, for corresponding period of 1898.

Port Arthur, Duluth & Western.—Blake, Lash & Cassels, solicitors, Toronto, give notice that pursuant to the provisions of the Railway Act, the purchaser of this railway will apply to the Dominion Parliament for an act incorporating a company to acquire complete control and operate or dispose of the railway, & to acquire, build & operate, or dispose of terminals, elevators, wharves, &c., at Port Arthur.

Qu'Appelle, Long Lake & Saskatchewan.—Net earnings for Dec., 1899, \$2,222.08, against \$2,393.29 for Dec., 1898. The Dominion Government Subsidy for the 6 months ended Dec. 31, 1899, taking the net earnings of the Co. to Nov. 30, 1899, permit of a distribution of £1 1s. % in respect of the interest due Feb. 1 on the 1st mortgage sterling bonds, and payment of such interest will be made on and after that date on presentation of the coupons at the office of Chaplin, Milne, Grenfell & Co., London, Eng. The Co.'s certificate will be given for the unpaid balance of the coupon.

Quebec & Lake St. John.—Holders of the £780,000 five % 1st mortgage bonds are requested by the bondholders' committee to deposit them with the Railway Share Trust & Agency Co., London, Eng., which will give scrip certificates in exchange. Bonds will be received up to Feb. 22 on the present conditions; but after that date only on such terms as the committee may hereafter decide.

For Nov., 1899, the net earnings were \$5,622 more than in Nov., 1898.

Quebec Central.—Gross earnings for Dec. \$34,155.79, against \$30,638.14 in Dec. '98. Working expenses \$31,088.49, against \$25,931.18. Net earnings \$3,067.30, against \$4,706.96. Gross earnings, 12 mos. to Dec. 31, \$503,282.80, against \$450,249.69. Working expenses \$334,283.68, against \$303,908.00. Net earnings \$168,999.12, against \$146,341.69.

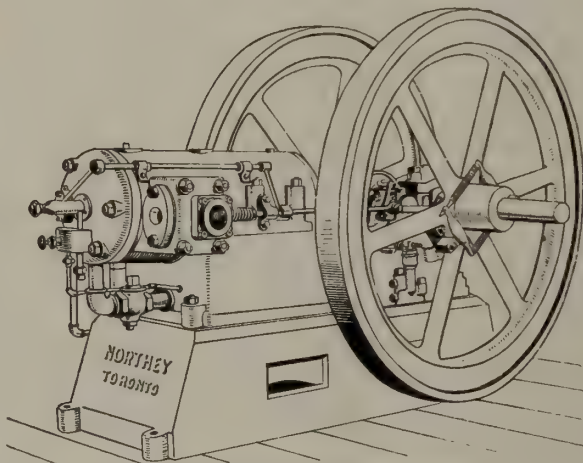
Saskatchewan & Western.—At the annual meeting at Winnipeg Feb. 1, the following directors were elected:—E. B. Osler, H. C. Hammond, A. M. Nanton, J. R. Waghorn, H. W. Nanton. No other business was transacted and the meeting adjourned until Mar. 15, when a proposed agreement between this Co. & the Manitoba & North-Western R. Co., altering the terms of the lease under which the M. & N. W. R. Co. of Canada is the lessee of the railway of this Co., will be submitted for approval.

United Counties.—Greenshields, Greenshields, Laflamme & Dixon, solicitors, Montreal, give notice of application to the Dominion Parliament for an act to incorporate the Quebec Southern Ry. Co. for the purpose of acquiring the United Counties Ry. and its charter, privileges and franchises; to authorize the Co. to build and operate a railway from the terminus of the U.C.R. at Iberville to Lacolle, Que.; to authorize the Co. to build and operate a railway from a point on the railway aforesaid to the St. Lawrence River, at or near Valleyfield, and to construct bridges and other works deemed necessary for the above mentioned purposes, and to build and operate any branch lines necessary for the working of the same. (Jan. pg. 3.)

White Pass & Yukon.—The earnings for the 3 weeks ended Dec. 21 were \$7,400, making from the opening of the line to Dec. 21, \$866,119. On Mar. 1 the general office will be removed from Seattle, Wash., to Skagway, Alaska.

The Northey Gas or Gasoline Engine.

In Connection with Pumping Machinery for Tank Duty.



"BUILT FOR HARD WORK."

Railway Officials will find the Northey Engine to be a marked improvement over steam or other forms of power for this duty. It is simple of construction, and easily managed, necessitating only the turn of a fly-wheel to start, while it can be going at full speed in a few seconds and be shut down on the instant. Needs no engineer to look after it, the station hands can do all that is required, while it will run for hours at a time with little or no attention. The Engine is compactly built and of the best materials; it uses either gas or gasoline for fuel, and its safety and economy with either have proved it to be the most satisfactory power in the market.

We will cheerfully send Booklet and every information upon request.

The Northey Mfg. Co., Limited, 1082 KING ST. SUBWAY, Toronto, Ont.

C.P.R. Earnings & Expenses.

Gross earnings, working expenses, net profits and increases over 1898, from Jan. 1, 1899:

Earnings.	Expenses.	Net Profits.	Increase.
Jan. \$1,864,370.36	\$1,247,036.50	\$617,333.86	\$101,906.27
Feb. 1,753,382.82	1,153,681.34	599,701.48	176,034.12
Mar. 2,109,667.58	1,280,772.01	828,895.57	75,662.06
Apr. 2,196,312.40	1,276,008.91	920,303.49	203,212.80
May 2,402,151.29	1,369,392.68	1,032,758.61	106,096.30
June 2,362,278.67	1,339,218.47	1,023,060.20	205,664.83
July 2,385,625.47	1,412,663.84	972,961.63	242,272.84
Aug. 2,474,036.85	1,455,205.13	1,018,831.72	135,804.84
Sept. 2,649,785.37	1,502,899.82	1,146,885.55	54,371.89
Oct. 3,084,604.55	1,673,588.61	1,411,015.94	155,170.45
Nov. 2,977,403.69	1,695,167.81	1,282,235.88	201,727.02
Dec. 2,970,219.21	1,594,237.65	1,375,981.56	96,870.45

\$29,230,038.26 \$16,999,872.77 \$12,230,165.49 \$1,754,793.87

Approximate earnings for Jan., \$2,151,000, against \$1,864,000 in Jan., 1899; increase, \$287,000.

DECLARATION OF DIVIDENDS.

At a meeting of directors, Feb. 12, a dividend of 2% for the ½ year was declared on the preference stock, & of 3% on the common stock, making with the previous ½ yearly dividend already paid 4% on the preference & 5% on the common stock. This was even better than the most sanguine expectations, which placed the ½ yearly dividend on the common at 2½%, and this stock advanced to par, though it has since slightly receded.

Following is a statement of the Co.'s business for 1899, the best year in its history:—

Gross earnings.....	\$29,230,038
Working expenses.....	16,999,872
Net earnings.....	12,230,165
Income from other sources.....	1,150,198

Total net income..... \$13,380,364

Less amount applied against ocean steamships..... 155,000

Less fixed charges, including interest on land bonds..... 6,816,676

Net revenue available for dividends..... 6,408,687

After payment of all dividends declared, the surplus for the year carried forward is \$2,203,847.

The gross earnings for the past 16 years are as follows:—

1884.....	\$5,750,521.27
1885.....	8,368,493.12
1886.....	10,081,803.30
1887.....	11,606,413.00
1888.....	13,195,535.00
1889.....	15,309,138.00
1890.....	16,552,529.00
1891.....	20,241,096.00
1892.....	21,409,352.00
1893.....	20,962,317.00
1894.....	18,752,167.00
1895.....	18,941,036.00
1896.....	20,681,596.00
1897.....	24,094,534.00
1898.....	26,138,977.00
1899.....	29,230,038.00

SUBSIDIARY LINES.

DULUTH, SOUTH SHORE & ATLANTIC.—Approximate earnings for Jan., \$167,147; increase over Jan., 1899, \$11,941.

Net earnings for 10 months to Nov. 30, 1899: \$857,555, as against \$533,511 for corresponding period.

MINERAL RANGE, HANCOCK & CALUMET.—Approximate earnings for Jan., \$39,205; increase over Jan., 1899, \$11,941.

MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE.—Approximate earnings for Jan., \$336,249; increase over Jan., 1899, \$95,600. Net earnings for 5 months to Nov. 30, 1899, \$1,314,017 against \$1,020,473 for corresponding period.

Canadian Pacific Railway Land Sales.

	Acres.		Amount.	
	1899	1898	1899	1898
Jan.	14,718	22,044	\$ 46,411.35	\$ 72,924.83
Feb.	13,747	20,650	43,371.00	66,399.00
Mar.	24,045	33,421	74,430.00	109,010.00
April.	36,626	43,145	116,755.00	140,276.00
May.	39,573	43,148	126,862.00	137,835.00
June	54,225	49,203	169,234.00	160,200.00
July	47,402	39,512	149,546.00	123,010.00
Aug.	35,214	19,448	110,705.00	63,911.00
Sept.	25,517	18,007	83,719.70	59,936.43
Oct.	30,473	17,026	99,429.09	55,370.67
Nov.	44,633	25,979	140,491.39	82,918.64
Dec.	54,730	17,939	166,580.54	54,703.01
	416,906	348,612	\$1,326,537.99	\$1,123,694.58

The above table, which was published in our last issue, is repeated, as there were two slight errors in the figures previously given.

Acres. Amount.

Jan..... 1900 1899 \$100,857.85 \$46,411.35

Owing to the crowded condition of the Winnipeg station building, the Land Department's offices have been removed to the Forum building, 453-457 Main Street.

During the autumn excursions on the C. P.R. from Manitoba & the Northwest Territories to the east, the Co. made an offer to pay a commission of \$10 on each 160 acres of land sold for them by the excursionists. An Ontario farmer has been the first to take advantage of this offer, & he has done so well that he has made enough money to pay for the ticket on which he travelled from the Western country. He disposed of 4 quarter sections to people now living in Ontario, the average price obtained being \$4 an acre. The Land Department has since been notified of several other sales.

The Land Department being pleased with the recent experiment of supplying thoroughbred live stock sires to farmers in Manitoba & the Territories, has resolved to import another lot of well-bred animals for distribution on the same terms as governed the disposition of the former lot. One hundred & fifty boars & bulls will be imported, an equal number of each, & those who look after the boars for a year will become the owners of the animals, while for bulls 2 years is the time required to perfect title to them. Land Commissioner Hamilton states that it is not the intention of the department to purchase the stock from any particular locality, & farmers in Manitoba & the Territories owning well-bred animals between one & two years old may contribute to the supply required.

Grand Trunk Earnings, Expenses, &c.

The following statement of earnings supplied from the Montreal office, includes the G.T. of Canada, & the Detroit, Grand Haven & Milwaukee Rys., the earnings of the Chicago & G.T., which is in the hands of receivers, being omitted.

1900	1899	Increase	Decrease
Jan.....	\$1,819,988	\$1,606,065	\$213,923

The following figures are issued from the London, Eng., office:

GRAND TRUNK RAILWAY.

Revenue statement for Nov., 1899:

1899	1898	Increase	Decrease
Gross receipts.....	\$412,800	\$373,363	\$39,437
Working expenses.....	265,600	241,773	23,827
Net profit.....	\$147,200	\$131,590	\$15,610

Aggregate July 1 to Nov. 30, 1899:

1899	1898	Increase	Decrease
Gross receipts.....	\$2,017,447	\$1,781,224	\$236,223
Working expenses.....	1,278,115	1,134,089	144,026
Net profit.....	\$739,332	\$647,135	\$92,197

CHICAGO AND GRAND TRUNK RAILWAY.

Revenue statement for Nov., 1899:

1899	1898	Increase	Decrease
Gross receipts.....	\$67,100	\$60,102	\$6,998
Working expenses.....	59,100	54,158	4,942
Net profit.....	\$8,000	\$5,944	\$2,056

Aggregate July 1 to Nov. 30, 1899:

1899	1898	Increase	Decrease
Gross receipts.....	\$325,055	\$298,979	\$26,076
Working expenses.....	283,672	250,811	32,861
Net profit.....	\$41,383	\$48,168	\$6,785

DETROIT, GRAND HAVEN AND MILWAUKEE RY.

Revenue statement for Nov., 1899:

1899	1898	Increase	Decrease
Gross receipts.....	\$18,700	\$16,549	\$2,151
Working expenses.....	13,600	13,407	193
Net profit.....	\$5,100	\$3,142	\$1,958

Aggregate July 1 to Nov. 30, 1899:

1899	1898	Increase	Decrease
Gross receipts.....	\$299,004	\$290,777	\$8,227
Working expenses.....	63,911	64,876	965
Net profit.....	\$235,093	\$225,901	\$9,192

DETAILS OF G.T.R. RECEIPTS JULY 1 TO DEC. 31.

1899.	1898.
Passengers, number.....	3,785,870
" amount.....	\$679,917
Immigrants, number.....	6,151
" amount.....	\$5,743
Mails, express, &c.....	\$112,807
Freight, tons.....	5,391,906
" amount.....	\$1,560,322
Miscellaneous receipts.....	\$66,576
Total receipts.....	\$2,425,365
Increase.....	\$287,888

TRAFFIC RECEIPTS OF THE SYSTEM.

Traffic receipts, July 1 to Nov. 30.

1899.	1898.	Increase.	Decrease.
Grand Trunk.....	\$2,425,365	\$2,137,478	\$287,887
Chicago & G.T.....	399,426	373,690	25,736
D., G. H. & M.....	117,223	107,139	10,084
Total.....	\$2,942,014	\$2,618,307	\$323,707

Traffic receipts, Jan. 1 to 31:

1899.	1899.	Increase.	Decrease.
Grand Trunk.....	\$358,166	\$315,423	\$42,743
D., G. H. & M.....	15,712	14,590	1,122
Total.....	\$373,878	\$330,013	\$43,865

DECLARATION OF DIVIDENDS.

The Secretary has issued the following notice. Subject to audit, the accounts for the ½ year to Dec. 31, 1899, show the following results:—

Gross receipts.....	\$2,423,000
Working expenses, including special appropriation of \$20,000 in reduction of bridge renewal suspense account.....	1,594,000

Net receipts..... 829,000

Net revenue charges for the ½ year, less credits..... 490,000

..... \$339,000

Deduct Chicago & G.T. deficiency for the ½ year, payable by the G.T.

Co. under traffic agreements..... \$19,000

Less Detroit, Grand Haven & Milwaukee surplus for the ½ year..... 5,000

..... 14,000

Surplus for the ½ year..... \$325,000

"This surplus of \$325,000 added to the balance of \$2,000 from June, 1899, makes \$327,000 available for dividends, which will admit of the payment of the full dividend for the ½ year on the 4% guaranteed stock, a dividend of 4% on the 1st preference stock, making with the dividend of 1% paid for the ½ year ended June 30, 1899, the full dividend of 5% for the year 1899, and a dividend of 3¼% on the 2nd preference stock, leaving a balance of about \$3,700 to be carried forward."

This very satisfactory, & to a large extent unexpected result, has had its effect on the Co.'s 1st, 2nd & 3rd preference stock, all of which has shown considerable advance. A Montreal despatch of Feb. 8th, referring to this, said:—

"In 1883, when the late Sir Jos. Hickson was General Manager, the Co. paid a dividend of 5% on the 2nd preference, & in 1887 a fraction of 1% was paid. From that time until the present instance no declaration on that stock has been made. In 1896, when Mr. Hays assumed the management of the road, 1st preference stock was quoted at 26, whereas to-day the price opened at 88½, and went up to 91½. Taking all the securities, with the advances they have made since the inauguration of the present management, it is estimated that they have been enhanced in value to the enormous extent of between \$70,000,000 and \$80,000,000. Last year the regular 4% dividend was paid on the guaranteed stock, and 1% on the 1st preference for the ½ year, which is now brought up to 5% for the full year. In 1898, in addition to the 4% guarantee, 3% was paid on the 1st preference, and for the two years previous to that, the first of Mr. Hays' management, no dividends were paid. The earning powers of the system have been carefully nursed by the improvement of the roadbed and equipment, as

well as by the economical working of the road. In addition to the above figures, showing the advances, it may be stated that in 1896 the 4% guaranteed was quoted on the stock market at 40, and has advanced to 94½, while 1st preference has advanced from 30 in 1896, to 91½ to-day, and 2nd from 20 to 63½."

The stock and share capital of the Co. is as follows:—

	£	s.	d.
4% guaranteed stock.....	5,219,793	14	4
1st preference stock.....	3,420,000		
2nd " ".....	2,530,000		
3rd " ".....	7,168,055	4	6
Total preference stocks.....	18,337,848	18	10
Ordinary stock.....	22,475,984	16	2
Total.....	£40,813,833	15	

Chicago & Grand Trunk Finances.

In our last issue we gave full particulars of the proceedings under which the affairs of this Co. had been placed in the hands of receivers. Sir C. Rivers Wilson, Lord Welby & J. Price, trustees of the reorganization scheme submitted by the Co., recently gave notice to the holders of 1st & 2nd mortgage bonds as follows:—

"Bonds in excess of a majority of each class have been deposited with Glyn, Mills, Currie & Co., in support of the scheme. Proceedings have been instituted in the United States Courts for the purpose of carrying the scheme into effect & receivers of the line have been appointed. It is important that bondholders who have not yet deposited should do so at once, as this action on their part will obviate unnecessary delay & expense in the U.S. proceedings. Instructions have accordingly been given to Glyn, Mills, Currie & Co. to receive, on behalf of the trustees, any further bonds which may be deposited. An application will be made at once to the Stock Exchange for a quotation of the Trustees' Certificates, which will carry interest at 4% as from Jan. 1. Bondholders are reminded that under the scheme they have to bear no part of the expenses incident to it, whereas by depositing their bonds with other persons they will, in any event, incur liabilities."

A. Keyser & Co., London, Eng., have given to the press the following letter received by them from S. Borg & Co., of New York, dated Jan. 22nd, & addressed to the holders of 1st mortgage 6% bonds: "Under the plan of reorganization published by the C. & G.T. R. Co. you have been asked to exchange your present first lien of \$6,000,000 on the en-

tire property of the Co. for an equal amount of new 4% bonds of an issue of \$15,000,000 (of which the 2nd mortgage bondholders are to be given 75% of their holdings), thus materially decreasing your security, to say nothing of the loss of 33¼% in interest. Needless to say, this proposition is not acceptable to the 1st mortgage bondholders & is being vigorously opposed by them. It is evident, not only that the plan was gotten up in the interests of the 2nd mortgage bond & stock holders, but that there was some doubt on the part of the Co. of its ability to carry out the plan, for, prior to the maturity of the 1st mortgage bonds on Jan. 1 the trustees of the mortgage resigned, & a new one was appointed, who filed a bill on Jan. 2 for the foreclosure of the mortgage, alleging that the property was not worth the \$6,000,000 1st mortgage. In view of the amount of new bonds proposed to be issued under the plan, the allegation seems to be, to say the least, somewhat inconsistent. Upon this application two receivers were appointed, one of whom is the counsel & a director of the Co. & a former trustee under the 1st mortgage. The bondholders may be interested to know how the property is being managed. In 1898 the gross earnings of the C. & G.T. were \$10,726 per mile of road, while those of the G.T.R. of Canada were but \$5,700. Notwithstanding this large advantage in earning power in favor of the former, its operating expenses were 78.28%, while the G.T. of Canada operated its own road for 66.60%. This difference was accentuated during 1899, for during the 10 months ended Oct. 31, 1899, the G.T. of Canada was operated for 64½%, while the expenses of the C. & G.T. were actually 86%. Thus an increase of \$181,000 gross was turned into a decrease of \$284,000 in net earnings. Even with the heavy operating expenses referred to, however, the net earnings of the road in 1898 were \$780,847, or more than \$400,000 in excess of interest on the 1st mortgage bonds & rentals, so that the security of the 1st mortgage bonds is shown, even under adverse circumstances, to be beyond question. Had the road been operated at a fair ratio, say 70%, this surplus would have been in the neighborhood of \$700,000. We have been requested by our London friends to represent them in enforcing the rights of the 1st mortgage bondholders who have deposited with Martin's Bank, Ltd., of London, a large amount of the bonds under the agreement dated Dec. 21st, 1899. Holders of the bonds in the U.S. & Canada can deposit them with the Central Trust Co. of New York under a similar agree-

ment, copies of which can be obtained from the Trust Co. or at our office. Steps have been taken by our counsel to enforce the rights of bondholders, & the prompt deposit of the same will facilitate our doing so."

Grand Trunk Betterments, Etc.

The Co. is said to have completed the purchase of a big block of property in the vicinity of Bonaventure station, Montreal, in order to secure better facilities for the handling of freight. One strip of property acquired runs along the line of the railway, & extends west from Mountain st. to Aqueduct st. The other property which has been taken in runs along the south side of Albert st. from Chaboulez square west to Mountain. As soon as the buildings standing on these properties can be demolished the work of erecting the necessary buildings & track laying will be commenced. The acquisition of this property has been made necessary by the large amount of freight now handled at the Bonaventure yards.

It is rumored at Midland, Ont., that the Co. intends erecting large freight sheds there for the handling of package freight.

Surveys have been made for a cut-off line westward from Waterdown, Ont., to relieve traffic on the Y, but it is said nothing has yet been decided on in regard to construction.

The Hamilton City Council has decided to ask the Railway Committee of the Privy Council to compel the Co. to rebuild the bridge on the high level road over the G.T.R. main line, to build a bridge on Strachan st. & to remove its wires on Ferguson avenue.

C.P.R. Betterments, Construction, Etc.

Eastern Division.—About \$130,000 has already been appropriated to be expended on betterments, &c., this year. Nearly half of this sum will be used in replacing temporary bridges by permanent work, & about one-third of the total amount will be expended in ballasting & in general improvement to road bed, gradients & alignment. Considerable additions & extensions will be made to sidings, to accommodate increased traffic & longer trains; several stations & approaches thereto & the yards will be improved, & plants will be erected for the more economical handling of fuel for locomotives. The dock at Jack Fish, Ont., will be considerably improved. It is probable that additional appropriations for this division will be granted later on in the year.

MICA BOILER AND PIPE COVERING.

Used after exhaustive competitive tests by the

BRITISH ADMIRALTY on H. M. THE QUEEN'S YACHT.

The following Railways use it extensively:

C. P. Ry., M. C. Ry., L. E. and D. R. Ry., and C. O. Ry. in CANADA.

G. E. Ry., G. C. Ry., S. E. Ry., and L. & Y. Ry., in ENGLAND.

For full particulars, prices, etc., apply to the Company's Head Office in Canada.

The Mica Boiler Covering Co., Limited, 86-92 Ann St., Montreal.

Work has been commenced on the new bridge over the Rideau River below St. Patrick St., Ottawa.

Ottawa Connecting Line.—No decision has yet been arrived at as to the route which this line will take in crossing the city of Ottawa, so as to connect the C.P.R. Co.'s present union station near the Chaudiere Falls, with the central station near the canal basin & Russell House. The Co. recently acquired a right of way across the city about 100 yards south of the Canada Atlantic track, but this location has been objected to very strongly by the city authorities, on the ground that it would necessitate a second level crossing at Bank St., & the Co. is being urged to use the Isabella St. route, which would locate its tracks alongside the Canada Atlantic. Surveys of the latter route have been made, which show that it would cost much more than the route originally selected by the Co. (Dec., '99, pg. 348.)

Montreal-Toronto Double Track.—The second track has been completed between Montreal Jct. & St. Anne's, being laid with 100 lbs. rails. The old track between Dorval & Beaconsfield, & between St. Anne's & Vaudreuil, has been relaid with 100 lbs. rails, so that there is now a through track laid with 100 lbs. rails between Montreal Jct. & Vaudreuil. (Sep. '99, pg. 267.)

An interlocking switch, to be worked by leverage from St. Anne's station, has been put in a little west of the station.

Toronto Terminals.—As soon as the frost is out of the ground work will be started on a freight shed at Toronto, to be built south of the present freight shed & north of Lake St. The new building, which will be 600x38 ft., will be similar to the present one, & its erection will almost double the accommodation at this point. A freight office will be built at the end of the new shed, & the freight agent & his staff will remove there from the present shed as soon as the new building is completed. Some of the tracks will necessarily have to be changed & some new ones will be put in. A road-way will be built on the lake side of the new shed. Altogether these works will cost between \$20,000 & \$25,000. (Jan., pg. 6.)

Improved coal chutes are about to be built at Toronto Junction. The first pocket to be built will hold about 60 tons, & more will probably be built later on. The main feature will be that the coal will be weighed as it is delivered to the engines. (Jan., pg. 6.)

Owen Sound Terminals.—Work has commenced on the additions & improvements. Tracks will be run through no. 2 freight shed, another freight shed, which will be no. 4, is to be erected on the north side of the slip and will be 200 ft. long. The passenger dock will be re-constructed, reducing it to the level of the railway track. (Jan., pg. 6.)

Western Lines. Following up the policy adopted in previous years, a very large sum will be spent this year in further improving the lines west of Fort William, the appropriations aggregating about \$1,500,000. The filling in of wooden bridges wherever possible, & the substitution of masonry arches, masonry culverts, or iron pipes, will be continued, masonry piers and abutments and steel bridges being used for large openings. Most of this work will be west of Calgary, but some will be in southern Manitoba, where the bridge at Milford, over the Souris, will be partly filled this season, necessitating the using of some 50,000 yards of earth.

Between Calgary & Laggan about 10 miles of track will be laid with 80 lbs. steel, & some 50 miles or more of a similar weight will be laid on the main line on the Pacific division, replacing 60 lbs. rails. A large amount of work will be done between Winnipeg & the Pacific coast, ballasting, trimming slopes, & improving ditches. On the Wabigoon & Lethbridge sections the sags will be lifted.

At Ignace the yard will be increased by lengthening existing tracks and putting in additional ones. Additional sidings will be provided on the Brandon section. At Michel Creek, on the Crow's Nest branch, a lot of side tracks will be put in to accommodate the Crow's Nest Pass Coal Co.'s new mine. On the Mountain section of the Pacific division the length of 5 sidings will be considerably increased for crossings. On the Columbia & Kootenay branch, between Nelson & Robson, the improvement of the alignment will be continued, and about 36 trestles will be filled. About 50 miles of line will be fenced with wire, of which some will be near Dryden, Ont., & the balance mostly west of Winnipeg.

Large turn-tables will be provided at Medicine Hat, Rogers Pass, & Revelstoke, to accommodate the increased size of the locomotives. Coal pockets will be erected at Broadview. The improvements of Laggan yard, started last year, will be completed. At Rogers Pass there will be erected a station, a round house, coal tracks, storage tracks for snow ploughs, & a turn-table for locomotives working over the Selkirks. At Revelstoke & Field the engine stalls will be rendered fire proof.

On some of the prairie sections where, owing to the alkaline nature of the water, it has been necessary to run auxiliary water tanks on trains, a good water supply will be provided. Dams & tanks will be erected at Drinkwater on the Pasqua section, & at Seven Persons on the Lethbridge section. At a point 8 miles west of Gleichen on the main line, water will be brought to the track from the Bow River by a pipe 2 miles long.

The station at Carman, Man., will be moved to Elm Creek & another station will be built at Carman. Dwelling houses for men will be erected at Ignace, La Riviere, & Laggan. A station & freight shed will be built at Michel Creek, & a freight shed at Cowley, both on the Crow's Nest branch. A ticket & telegraph office will be built on the wharf at Kaslo. Terminal facilities will be provided at Rossland, by the construction of a freight house & team & storage tracks. An improved station will be built at Golden. A number of additional section houses will be erected at various points. At Glacier House the roads to the Glacier will be improved. From Field a road will be built to Emerald Lake, & at Lake Louise roads will be constructed to different points of interest. At Nelson permanent ways will be erected for the building of steamers. Some other works to be carried out on the Western lines this year are referred to under separate headings below.

Fort William.—Recognizing the vast shipping point that this will undoubtedly become, the management has decided, on a comprehensive plan, for a very large yard, which, of course, will not be carried into effect at once, but will be done from time to time as traffic requires. The work this year will consist mainly of the completion of what was started last year, including the 20 stall engine house, shops, coal pockets, & the laying of some additional tracks. (Jan., pg. 6.)

Fort William to Winnipeg.—It is not expected that any work will be done on the double tracking of this portion of the main line this year, further than the continuing of the work of putting in sidings of 4,000 ft., & lengthening the old ones to that distance, all of which will be so laid that they will ultimately form part of the second track. (Jan., pg. 6.)

Rat Portage.—The work started last year to increase the capacity of the yard, &c., will be completed, involving an expenditure of some \$40,000. (Jan., pg. 7.)

The Bonnet Lake Branch, from the main line at Molson, 45 miles east of Winnipeg, is to be completed as early as possible. It is expected that the first 10 miles will be completed early in May, & the whole branch,

some 22 or 23 miles, by the end of June or early in July. (Jan., pg. 7.)

Winnipeg Terminals.—The growing importance of Winnipeg & the great increase in its railway business renders it necessary to vastly improve the Co.'s accommodation for handling freight, & it is likely that in the near future a comprehensive scheme will be decided on by which the Winnipeg yards will be entirely remodelled & the location of the shops will be changed so as to make it possible to handle the business to the best possible advantage, & to provide scope for any future improvements which may become necessary from time to time.

There is no truth in the reports that the management has decided to change the location of the proposed station & hotel. They will be built partly on the site of the present station, on the east side of Main street, taking in from Point Douglas ave. to Higgins ave. The station will be large enough to accommodate any possible increase in business that is likely to occur in the next 10 or 12 years, & no doubt the necessities which may arise for enlargement will be provided for. The hotel will contain about 270 rooms. The ground plan for the station & hotel is about settled on, but the elevation is still being worked at. It is probable that red stone will be used, as it is considered it would look best & wear best. The stone from Verte Island, Lake Superior, is favorably spoken of. It is likely that tenders will be asked for at an early date for at least some portions of the work, & and it is possible that the building may be covered in this year. (Jan., pg. 7.)

The question of the crossing of Main street by the tracks is still in abeyance, pending negotiations with the City Council, & whether the crossing will be an over-head one or a subway has not been decided. (Dec., '99, pg. 349.)

The West Selkirk Branch, which runs from Winnipeg along the west bank of the Red River, from Winnipeg to West Selkirk, 22 miles, is likely to be extended northwesterly to the western shore of Lake Winnipeg, probably to some point in township 17, which would make a convenient summer resort for Winnipeggers. The survey has been started & it is quite likely that the extension will be built this year.

Stonewall Branch.—It is not probable that any extension will be made this year beyond Teulon, 39 miles from Winnipeg, to which point the line was extended in 1898. (June, '99, pg. 172.)

The McGregor-Varcoe Branch, (from McGregor, on the main line, 22 miles west of Portage la Prairie, to Varcoe, on the Great Northwest Central), was graded for 28 miles from McGregor last year, & track will be laid on this grade as soon as spring opens. No announcement has yet been made as to whether the grading is to be continued to Varcoe this year. (Dec., '99, pg. 349.)

Pacific Division.—Nearly \$500,000 were expended on improvements, &c., last year, very nearly half of which was devoted to renewing buildings & strengthening bridges. Among the other most important works were ballasting Cascade section, improving alignment of Columbia & Kootenay branch, ditching Mountain & Thompson sections, improving English Bay branch, establishing divisional yard at Field, building large dock at Kaslo, station at New Westminster, wharf & passenger platforms at Nelson & Robson, station & hotel at Sicamous, transfer barge for Kootenay Lake, building retaining wall, raising tracks at station, filling wharves, providing coaling facilities & extending wharves at Vancouver.

Columbia & Western Ry.—Track has been laid on the main line to the western terminus at Midway, & it is expected the operating department will take the line over early in March. The long tunnel through the

Bull Dog Mountain is nearly completed. The tunnel itself is 3,000 ft. long, the approaches at either end making it 3,700 ft. On Jan. 19 we were advised that work had been suspended on the spur lines, leaving about 5 miles of track to be laid on them in the spring. One of these, the Motherlode branch, starts from Greenwood. It is $5\frac{1}{2}$ miles in length, & reaches the mining camp north of Greenwood. Another branch starts from Eholt, & is about 10 miles long. From this short branch there are 6 spur tracks, ranging from about half a mile to $3\frac{1}{2}$ miles in length, & reaching various mines in the district about Phoenix. There is also a half mile spur to Greenwood smelter. In all, these branches & spurs aggregate over 26 miles.

No announcement has been made as to the intentions of the management in regard to extending the line beyond Midway to connect with the transcontinental line & no information is obtainable. Surveys have been made from Midway via Keremeos to near Princeton, down Quilchena Creek near Quilchena, westerly to Nicola Lake, skirting the left bank of the Nicola River to near the Twenty-Two Mile House, & then following the right bank to Spence's Bridge on the main line. President Shaughnessy, when addressing the Vancouver Board of Trade last autumn, was very guarded in his references to this extension, & stated that he was not prepared to say that there was any practical road between Vancouver and the Boundary Creek country. He admitted that a line could be built between Penticton & Midway, which would shorten the distance to some extent because it would substitute a railroad for a wagon road from the foot of Okanagan Lake, but he added that it would not be wise for the Co. to proceed with the line to Penticton, or any other point in that vicinity, without first knowing how to get along to territory further west. Our own opinion is that the line is not likely to be carried beyond Midway this year, & probably not for some time to come. Of course the people of Vancouver and other Pacific coast points are very anxious to have the extension built, so as to give them more direct communication with the Boundary Creek & West Kootenay districts, but that business would not be enough to justify the Co. in building the extension, & it is a question if the resources of the districts to be passed through, at least so far as at present known, would warrant the very heavy expenditure which would be necessary. (Dec., '99, pg. 350.)

A Slocan Branch.—The following, from the Nelson Miner, is unconfirmed:—"The plans & specifications of a branch line of the C.P.R. up Ten Mile Creek, through Camp Mansfield, down Kaslo Creek to Kaslo, have been forwarded to Montreal, & this line will certainly be built next summer. The new road will pass near all the properties in Camp Mansfield & within a mile & a half of the Molly Gibson, to which point an aerial tramway can easily be constructed." (Jan., pg. 9.)

Vancouver Terminals.—Work is being proceeded with rapidly on the extension of the wharves & the filling in of the space between them & the tracks, so as to give additional room for wharves, &c. Considerably over \$100,000 was spent on this work last year, & about a similar amount will be spent this year. (Dec., '99, pg. 351.)

A Vancouver despatch says T. Tompkins, contractor, has arrived there to commence work on additions to the Hotel Vancouver.

New Westminster.—The new station building has been completed. (Oct., '99, pg. 292.)

New Westminster-Vancouver Loop Line.—The right of way is being secured, but it is doubtful if construction will be commenced this year. (Dec., '99, pg. 351.)

Vancouver & Lulu Island Ry.—A subsidiary company, the Vancouver & Lulu Island Ry. Co., of which H. Abbott, formerly General Superintendent of the C.P.R. Co.'s Pacific division, is President, is about to build a line from Vancouver to the north arm of the Fraser River, a distance of about 12 miles, & it is expected to complete the work this year. This line will fill the place of the Vancouver-Steveston line which has been talked of for some time. Steveston is situated on the north bank of the south arm of the Fraser, & it is hardly likely that the line will be carried to that place, as it would necessitate expensive bridging. In Vancouver the branch is expected to run about parallel to Granville St. until it reaches Sixth avenue, thence west along Sixth avenue to Maple St.; about half way between that street & Arbutus it will turn directly south, crossing Seventh avenue, & thence to the city limits. (Sep., '99, pg. 267.)

Duluth, South Shore & Atlantic.—It is said this Co. will erect an improved passenger station at Sault Ste. Marie, Mich., this year, that a site in a very desirable position has been purchased at a cost of about \$40,000, that the grading and track-laying incidental thereto will cost \$10,000, & that the station building will represent

an expenditure of \$20,000, & the new freight station \$5,000, making altogether an outlay of \$75,000 in station improvements.

It is said that Balch & Peppard, of St. Paul, Minn., have a contract for building an extension of 30 miles from Lake Gogebic, Mich., to connect with the Mineral Range branch of this line at Mass City.

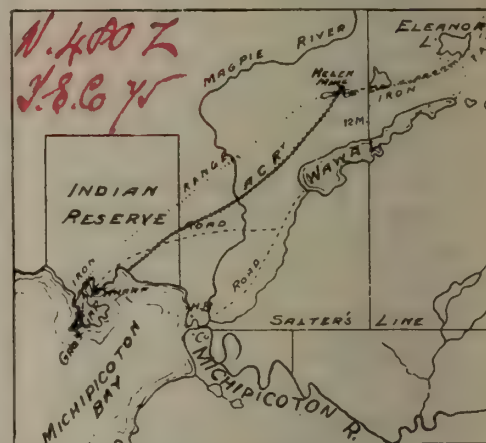
Minneapolis, St. Paul & Sault Ste. Marie.—An officer writes that there are no improvements as yet being made in North Minneapolis, Minn., but that the Co. has bought terminals there and will improve them in the spring. (Jan., pg. 7.)

The Business Men's Association of Grand Forks, Dakota, are negotiating to secure an extension of the M. St. P. & S. Ste. M. line to that town.

Surveys, Construction, Betterment, &c.

The Alberta Ry. & Coal Co. is building a short branch at Lethbridge, extending north-erly from the station and connecting with the branch running to no. 3 coal shaft.

Algoma Central.—The map given below shows the line which this Co. has built from Michipicoton Bay to the Helen mine. President Clergue states that by the time navigation opens the Co.'s ore dock at Michipicoton Harbor, the largest on Lake Superior, will be completed & that the Co. has already sold 500,000 tons of ore for shipment to various points in Ontario & the U.S., during this year. (Jan., pg. 7.)



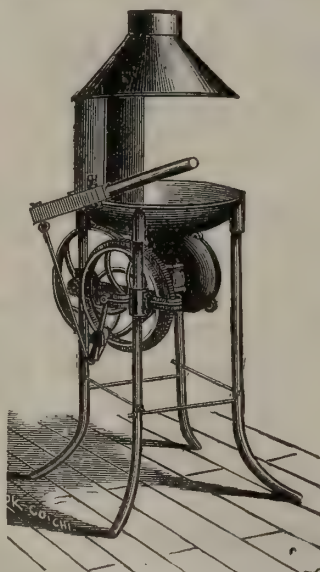
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In a recent interview Mr. Clergue gave this additional information. The Ontario & Lake Superior Co. has a capital of \$20,000,000 of which \$6,000,000 have been paid in. The capitalists composing the Co. belong to New York & Philadelphia. All the capital which is being invested is foreign money. It is wholly share capital, none of the money being raised by bonds or mortgages. We are building reduction & refining works at Sault Ste. Marie that will cost \$1,500,000, will give employment to 1,000 men & will have a capacity of 1,000 tons a day. The works are now under construction & will be ready for operation on June 1 next. We shall treat nickel, copper & other ores from all over Ontario. These works will give an added value to the mineral properties in this Province & will provide a market for mineral products. We shall draw ore from the district extending from Sault Ste. Marie to Sudbury. Anyone who has a carload of ore to sell can dispose of it to us and he will be in as good a position as the farmer when he goes to market with his grain. We are also erecting large chemical works in connection with the reduction works, for utilizing sulphur, & producing sulphurous anhydride for use in sulphide pulp mills. Alkali plants are also being built for the production of caustic acid & bleaching powder. The chemical works will cost \$500,000, while the alkali plants involve an outlay of \$1,500,000. A sulphide pulp mill costing \$250,000 is being erected in connection with our existing plant. I should not forget to mention that we are about to establish a steel rail mill that will cost about \$2,500,000. This will have a capacity of 100 tons of steel rails daily. (Nov. '99, pg. 325.)

Notice is given that application will be made to the Dominion Parliament this session to authorize a change in the location of the main line of this road so that it may run through Sault Ste. Marie to the Michipicoton River, thence northerly to the main line of the C.P.R., & southerly to Michipicoton Harbor. The act of incorporation of the company passed in 1899 provides that it may construct & operate a railway from Sault Ste. Marie to a point on the main line of the C.P.R. at or near Dalton station, & thence southerly to Michipicoton Harbor.

Atlantic & Lake Superior.—During last year this Co. built 4 miles of line, from West Paspebiec to end of wharf.

Canada Atlantic.—A recent press despatch from Ottawa stated that this Co. had decided to erect a second grain elevator at Depot Harbor, with a capacity of 1,500,000 bush. We are officially informed that the report was unauthorized & that the Co. does not contemplate any further expenditure at that point at present.

A good deal of work is being done filling trestles & improving yards at Depot Harbor, Hawkesbury, Rainy Lake & other points.

It is said work will not be started on the new Central station in Ottawa before next fall at the earliest, as the Government military stores which are located on the site will not be vacated before then.

Canadian Northern.—Track has been laid on the main line from Gladstone Jct. 220 miles, bringing the line within about 2 miles of Bell River, which runs from Porcupine Mountain, into Dawson Bay, Lake Winnipegosis. The present terminus is within about 20 miles of the northern boundary of Manitoba & about 125 miles from the Pas Mission and the great Saskatchewan River, at which point it is expected the line will cross on its way to Hudson's Bay. The Co. has also in operation a branch of 21 miles from Sifton Jct. to Winnipegosis, at the lower end of Lake Winnipegosis. It is expected that the main line will be extended this year to the great Saskatchewan. Last year's construction opened up a large lumber district,

containing high grade spruce, & the Co. carried about 3,000,000 of lumber during the year. Another important source of freight is the fishing industry on Lake Winnipegosis, the Co. having carried out 1,800,000 lbs., mostly whitefish, last year. (Jan., pg. 7.)

On the Gilbert Plains branch, which leaves the main line at Dauphin, 15 miles have been graded & 7 miles laid with steel. It is expected to complete the branch this year. Its western terminus will probably be at the base of the Riding Mountains, about 35 miles from Dauphin. (Jan., pg. 7.)

Preliminary surveys are being made for the proposed branch to Prince Albert, Sask.

In a recent interview in Montreal W. Mackenzie is reported to have said that Mackenzie, Mann & Co. having secured control of the Manitoba & South Eastern Ry., the Minnesota & Manitoba Ry., the Ontario & Rainy River Ry. & the Port Arthur, Duluth & Western Ry., will have welded this quartette by Sept., 1901, into a line of 432 miles in length, built in a first class manner & possessing as good grades eastward as any road in America. This will form a very important section of the new Canadian Northern Railway. To bring the wheat-fields of the West into communication with the great lakes was their object, & this would be done by the construction of a railway between 400 & 500 miles in length which would be completed by Aug. or Sept., 1901. It was, Mr. Mackenzie admitted, a little unfortunate that the promoters of this system should have to build through a foreign state, but this could not be avoided & 42 miles out of the total 432 would pass through Minnesota.

Canso & Louisburg.—Press reports have credited the Vanderbilt interests & also the C.P.R., as being behind this enterprise. In our last issue it was stated that we were informed that the Vanderbilt interests had nothing to do with the project. We have since been informed that the same is true as regards the C.P.R. The Canso & Louisburg Ry. Co. was incorporated by the Nova Scotia Legislature in 1896, & in 1898 the charter was extended for two years. Vice-President & General Manager Alton informs us that he has associated with him Boston & New York people with sufficient funds to build & equip the line from the Strait of Canso to Louisburg, with a branch into Arichat Isle Madam. On Jan. 19 he advised us as follows: "The soundings & borings at the River Inhabitants have been completed, & we find an excellent foundation for the piers of the bridge at that crossing. The bridge will be about 800 ft. long, with 2 centre spans of 200 ft. each, & approaches of about 200 feet each on either side. Chief Engineer J. S. Armstrong left yesterday to submit to the Provincial Government Engineer the plans, profiles & specifications for the first section. Up to the present we have been favored with fairly good weather." The Co. has called for tenders for construction, &c. (Jan., pg. 7.)

Detroit River Bridge.—It is said application has been made by the River St. Clair Ry. & Bridge Terminal Co., of St. Clair, Mich., for concessions toward building the bridge over the St. Clair river from Moore township, Lambton County, Ont.

Esquimalt & Nanaimo.—At Oyster Harbor, 59 miles north of Victoria, & 7 miles north of Chemainus Station, large coal bunkers have been completed for the shipment of the Wellington Extension & Alexandria coal. The bunkers are the largest on the Pacific Coast, with facilities for loading 1,000 tons of coal per hour. A car ferry has been established between Oyster Harbor & Vancouver with a capacity of 12 cars per trip. It connects with the C.P.R. at Vancouver. The Co. also operate a car transfer from Union, connecting with the C.P.R. at Vancouver, for the handling of Comox coal. An additional 5

miles of line has also been constructed by this Co. from the main line, branching off at Fiddicks Jct., 8 miles north of Oyster Harbor, & running to the Wellington Extension mines. (Jan., pg. 8.)

Great Northern, U.S.A.—It is said that this Co.'s line will be extended from its present terminus at Liverpool, 1½ miles to the Ferry station, on the south side of the Fraser River, opposite New Westminster, B.C. A recent visit of some of the chief officials to Vancouver revived the report that the Co. intends extending its line via New Westminster to that point.

Halifax & Yarmouth.—This is the new name of the line heretofore known as the Coast Ry. of N.S. Construction has been closed down for the winter. During the past year 20 miles of railway have been built, & will at once be put into operation, which will make the terminus of the line at Barrington Passage, Shelburne Co., 50 miles from Yarmouth. The Co. expects to complete an additional section of the railway this year to Shelburne town. (Jan., pg. 8.)

Intercolonial.—Tenders have been asked for the erection of a freight warehouse at St. John, N.B. It will be a wooden building, 118 x 508 ft., built of spruce, birch & ash. The contractor must begin the warehouse as soon as 200 ft. of wharf and foundations have been prepared. This 200 ft. must be completely finished & the remainder constructed in parts as the Chief Engineer may direct. There will be 25 doors in all on both sides of the building for the reception of freight, & doors for the admission of teams on either end. The shed will also be equipped with a complete set of offices. The contract calls for completion by June 30.

The new grain elevator at St. John, N.B., has been equipped with a rubber driving belt measuring 3,529 ft.

Interprovincial Bridge, Ottawa & Hull.—On the south approach between Nepean Point & Sappers Bridge, work is being continued through the winter, & it is expected to have all the substructure completed early in the spring. On Jan. 19 we were advised that the centre portion of one truss of the superstructure was in place on the Hull side & another one was being erected. (Dec., '99, pg. 352.)

Notice is given that application will be made to the Ontario Legislature by the City of Ottawa & the Pontiac Pacific Jct. Ry. Co. for an act to legalize & confirm a by-law of the City of Ottawa respecting this bridge, & to extend the time for its completion & for the earning by the Co. of the bonus debentures.

Kootenay Ry. & Navigation Co.—On Jan. 18 we were informed that track laying had been completed between Bonners Ferry, Idaho, & Kuskanook, B.C., & that preparations were being made to commence operating.

On the Co.'s subsidiary line, the Kaslo & Lardo-Duncan, grading has been completed from Argenta at the head of Kootenay Lake to Duncan City, B.C., with the exception of possibly about a mile. No track has yet been laid. (Dec., '99, pg. 352.)

Manitoba & Southeastern.—Track has been laid on the subsidiary line, the Minnesota & Manitoba, eastward from the southern boundary of Manitoba to War Road, Minn., where the station is located about 1½ miles from the mouth of the river. This gives a continuous line from Winnipeg. The right of way has been cut out further eastward to the north side of Baudette River, near where it empties into the Rainy River, which will be crossed here by a long bridge giving connection with the Ontario & Rainy River Ry., now under construction from Port Arthur westward. Some grading has been done between War Road & Baudette River, & is still being gone

on with, the location being largely through muskgs, where grading can best be done in winter. The line will doubtless be completed to the Rainy River this year. A daily train service is being operated between Winnipeg & Marchand, 50 miles, & twice a week a train is run to the end of track. (Jan., pg. 9.)

A bill is now before the U.S. Senate to provide for the erection of the bridge above referred to over the Rainy River. It provides that the Minnesota & Ontario Bridge Co., which is incorporated under the laws of Minnesota, may erect and maintain a bridge over Rainy River, at or near Cathcart's Point, Minn., just below the confluence of the Baudette River with Rainy River, the plan, location and elevation of the bridge, so far as the interests of navigation are concerned, to be determined by a board of three officers of the Corps of Civil Engineers, to be appointed by the Secretary of War. The bill, as originally presented in the Senate, provided that the bridge should have a draw or draws across the main channel of the river, leaving a clear water way between the piers on which the draw will rest of not less than 80 ft. The Committee on Commerce, to which the bill was referred, amended this clause by providing for a draw or draws over the main channel of the river, leaving a clear water way of not less than 160 ft. on one side of the pivot pier. It is understood that the promoters consider this width altogether unnecessary. The bill also provides that all railway companies in the U.S. or Canada desiring to use the bridge shall be entitled to equal rights relative to the passage of trains over it. Construction is not to be commenced until the Dominion Government has authorized the construction of such portion of the bridge as will occupy the portion of the Rainy River under the jurisdiction of the Dominion.

Kingston & Pembroke.—This Co. is applying to the Dominion Parliament for power to extend its line from Renfrew, Ont., across the Ottawa River to Bryson, Que., & also northward to the eastern branch of the Ottawa River. A press report says that surveys are being made, but this is not confirmed. (Nov., '99, pg. 326.)

Lake Erie & Detroit River.—When the Dominion Parliament last session voted a subsidy of \$3,200 a mile for the extension of this line from Ridgeway to St. Thomas, Ont., 44 miles, it was provided that it should be payable only in the event of adequate running rights over the Canada Southern between the points mentioned not being granted to the L. E. & D. R. on terms to be approved by the Railway Committee. Representatives

of the two companies were heard by the Railway Committee on Nov. 7 last, decision being reserved. The Committee has come to the conclusion that satisfactory arrangements cannot be made for running powers over the M. C., & the subsidy will therefore be granted to the L. E. & D. R. The Co.'s engineer has started to survey the line, & it is expected to start construction as soon as the weather will permit. (Dec., '99, pg. 360.)

Michigan Central.—On Feb. 3, we were informed in reference to the placing of a third truss on the cantilever bridge at Niagara Falls as follows.—“The new tower piers for the bridge have been completed, & the traveller for erecting the ironwork is being constructed. The erection of the ironwork will be started in about two weeks. The traveller will span both tracks, so that the work will be executed without any interruption of traffic, the material being lowered through an opening between the tracks made by cutting off the ties.” (Oct. '99, pg. 295.)

A rumor that this Co. intends to build a bridge across the St. Clair River, between Courtright, Ont., & St. Clair, Mich., is probably without foundation.

Midland of Nova Scotia.—M. Murphy, Provincial Government Engineer, recently inspected the section of this line between Windsor & the Shubenacadie River. The rails have also been laid on the other side of the Shubenacadie to Truro, but the line cannot be opened through owing to delay in completing the bridge over the Shubenacadie, which will be over 1,200 ft. long. Three piers have been completed on the east side & 2 on the west side, leaving 3 more to be built. (Jan., pg. 9.)

Newfoundland.—During 1899 18.25 miles were added to this system, namely St. Ann's to St. Johns, 9 miles, & from Notre Dame Jct. to Burnt Bay, 9.25 miles.

Nova Scotia Steel Co.'s Ry.—An unconfirmed report says that work will begin in the spring for an extension of this line from Sunny Brae, N.S., to Country Harbor. The line at present extends from Ferrona Jct., on the I.C.R., to Sunny Brae, 12.5 miles.

Northern Pacific.—As far as can be ascertained this Co. has no intention of extending its lines in Manitoba this year. (Jan., pg. 9.)

Ontario & Rainy River.—Up to Feb. 12, 20.61 miles of track had been laid west from Stanley, & it is proposed to go on slowly until 40 miles have been laid. There is no object in rushing the work at this season of the year,

& it is being done leisurely with a small gang of men, as the timber work is somewhat behind & prevents rapid progress. Over 1,000 men are engaged altogether on the line, & good progress is being made with clearing right of way, rock work, &c. No announcement has been made as to the further location of the line towards Rainy River, though the whole of the distance has been surveyed by several routes, & a decision has probably been arrived at. Several interviews with engineers have appeared in the daily papers, & are given for what they are worth. Engineer Dafter is credited with saying that the line will run between Bad Vermillion & Turtle Lakes through the Rainy River district. Engineer McCarthy, speaking of the line from the western end at Rainy River eastward, says it will run from the crossing of the river through the townships of Worthington, Dilke, & Morley, thence through the Indian reserve & the townships of Shenston & Dobie, continuing parallel to the river to Emo. (Jan., pg. 9.)

A Minneapolis despatch, stating that the bridge over the Rainy River would be a mile long, is incorrect. The length will be only about 1,000 ft. The bridge will probably be a series of 150 ft. steel spans, with a draw or swing in the centre, the whole on concrete or masonry piers. Further information about this bridge is given under the head of “Manitoba & Southeastern Ry.” There will be a large bridge across Rainy Lake, which it is said will take about 4,000,000 ft. of lumber.

The Company has acquired all the water front from the boundary of Fort William along Thunder Bay, covering all the ground where the Neebing & McIntyre rivers empty into the Bay. The town of Port Arthur is applying to the Ontario Legislature to confirm a by-law exempting the Co. from taxation for 21 years, & aiding the Co. in other ways. (Jan., pg. 9.)

A Minnesota paper mentions a rumor that the Duluth & Iron Range Ry. will be extended from Tower, Minn., to connect with the O. & R.R. Ry., probably opposite Koochiching, Minn., which is situated on the south side of the Rainy River. Another report says that the Great Northern (U.S.A.) will build from Hibbing, Minn., to Koochiching.

Ottawa & Gatineau.—On the extension from Gracefield 60 miles north of Ottawa, to Maniwaki, no track has yet been laid. The rock work is being proceeded with this winter with the intention of pushing the grading through to Maniwaki during next summer. (Nov. '99, pg. 327.)

Ottawa & New York.—It is said work on the St. Lawrence Bridge at Cornwall has been suspended until spring. It is hoped to

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have it completed by June, when the through traffic will be established between the terminal points of the road. The cost will be greatly enhanced, owing to the accident a year ago, which necessitated the tearing down of the large portion of the work nearly completed. (Jan., pg. 9.)

Ottawa Union Station.—As a solution of the difficulty which railways in Ottawa seem to experience in a marked degree at the present time, a terminal scheme is suggested by some local railway men & from the success attending such projects in other cities, it is by no means an unreasonable proposition. The fact, however, that some of the railway corporations are already secure in their rights & naturally inclined to tenaciously hold on to them is likely to have a militating effect against the successful accomplishment of any such scheme at the present time at least, or as long as the city is disposed to grant franchises which is perfectly within its province. A terminal system, it is pointed out, would do much to mitigate difficulties experienced in the past & by no means unknown at present in local railway circles. The scheme as operated elsewhere consists in the construction of a belt line by a terminal company owning all the tracks as well as the depots & on the payment of their proportionate share, allowing all roads to come in on an equal footing as well as being of benefit to industrial enterprises located in such a line. At the present time if a new railway wishes to enter a city it can get as far as the limits but no farther, inasmuch as the older roads first on the scene have acquired control of the running powers.—Ottawa Citizen.

Pontiac Pacific Jct.—Track having been laid on the Aylmer-Hull extension from Aylmer to Deschenes, work has been suspended for the winter. The intention is to resume operations as soon as the frost is out of the ground. (Jan., pg. 9.)

Prince Edward Island.—A contract for grading the first 10 miles of the Murray Harbor branch, from Charlottetown towards Murray Harbor, has been awarded to J. W. McManus, of Memramcook, N.B., who is said to have commenced work. (Jan., pg. 9.)

Quebec Bridge.—Press reports say that the G.T.R. management has been approached with regard to undertaking the construction of this bridge, with the result that the management has intimated that it does not see its way clear to do so, but would co-operate by using the bridge and by paying therefor.

The Quebec Bridge Co. has given notice of application to Parliament for an extension of the limit of time to complete the construction of the bridge & for other purposes. (Dec., pg. 353.)

The Salisbury & Harvey Ry. Co. proposes to extend its railway from Turtle Creek, Albert County, N.B., to Moncton, if sufficient assistance can be procured from the Dominion & New Brunswick Governments to provide a crossing over the Petitcodiac River. It is said the present highway bridge over the river at Moncton could be made available for both a railway & traffic bridge by rebuilding the present superstructure at a cost of about \$100,000. The citizens of Moncton have endorsed the scheme at a public meeting. A great deal of interest is being taken in the shale beds in Albert County, & it is said that the Albert Manganese Co. will start similar works in Moncton if direct communication with that city is provided. (Dec. '99, pg. 353.)

The South Shore Ry., which now operates a line from St. Lambert, Que., to Sorel, 44.67 miles, is said to have about completed an extension from Sorel to Yamaska, between 8 & 9 miles in length.

United Counties.—The Rutland Railway, which recently secured control of this line, is anxious to build wharves & elevators at Sorel, & has approached the town corporation in regard to a bonus.

White Pass & Yukon.—The contractor for the section from Caribou Crossing to Closeleigh, M. J. Heney, arrived at Victoria, B.C., Feb. 14, from the North, & in an interview said:—"The railway from Skagway to Bennett is in excellent shape, & daily trains are running on the summer schedule. It has been blocked twice, once for 6 days, & once, when the rotary snow plough broke, for 16 days; but as soon as we got the plough partly repaired we opened the road, although one of the cylinders of the plough was gone. This has been replaced & the line will probably not be closed again. I am now working 750 men in construction, & on my return I will begin to increase the force steadily, so that by the time spring opens there will be fully 2,000 at work. We will then keep up work steadily day & night, working 2 shifts of 12 hours each, but as we pay by the hour men often work for more than 12 hours. It is never so dark that all kinds of work cannot be done as well at midnight as at midday. The 42 miles from Caribou Crossing to Closeleigh, at White Horse Rapids, is nearly all completed so far as the roadbed is concerned. Tracklaying will begin in April, for I have a lot of rails, a locomotive & a number of cars at the Crossing. There are two large bridges to be put in & the timber is about ready. By June 10 I will have a train running from Caribou Crossing to Closeleigh. From Bennett to Caribou Crossing the work will keep me very busy until the middle of Aug. But I am confident that by Aug. 15 a train will run from Skagway to Closeleigh without change. Of course these plans presuppose that nothing will happen to interfere with the work." There has been a good deal of cold weather in the Yukon valley, Mr. Heney says, but the snowfall has only been enough to make good roads. He is running his Red Line Transportation sleighs as far down as Five Fingers, where connection is made with the Canadian Development Co.'s horse sleds & dog teams running to Dawson. There is a splendid two-horse road all the way to Five Fingers: Below that the road is for single horses. He expects there will be a large passenger travel this way to Cape Nome, & he has already received a number of inquiries as to the carrying of freight for Nome down the river. (Dec., pg. 353.)

The Superintendent took the snowfall at various points along the line of the railway for Dec. last, with the following results:—Glacier, 90½ ins.; White Pass, 55; Fraser, 42½; Log Cabin, 74½.

York & Carleton Counties, N.B.—It is said that work on this line of 6 miles, from Cross Creek station, on the Alex. Gibson Co.'s Railway, to Stanley village, will be commenced early in the spring. (Oct. '99, pg. 297.)

A Mix-up Straightened Out.

The Railroad Gazette, New York City, says in a recent issue:—

"WINNIPEG, MAN.—It is stated that the Canadian Pacific has decided to rebuild the burned station & hotel here at a cost of \$1,000,000."

The C.P.R. station in Winnipeg has not been burned since the 80's, when it was immediately rebuilt. The C.P.R. never had an hotel in Winnipeg. The Northern Pacific station & hotel in Winnipeg were burned in 1899. The station & offices have been rebuilt, but the hotel is not to be rebuilt. The C.P.R. Co. intends to take down its present station in Winnipeg & to replace it by a combined station, train shed & hotel, which will cost about \$800,000.

Great Northern Ry. Equipment.

The G.N.R. Co. of Canada has invited bids for the following equipment to be delivered by June:—4 8-wheel passenger engines, 3 10-wheel passenger & fast freight engines, 2 10-wheel compound fast freight engines, 2 sleeping coaches, 2 parlor coaches, 1 official car, 6 1st class passenger coaches, 8 2nd class passenger coaches, 6 baggage, mail & express cars, 200 box cars, 25 cattle cars, 75 platform cars, 3 conductors' vans, 3 refrigerator cars, 3 snow plows, 19 hand cars, & 13 push cars. Following are extracts from the specifications:—

Eight-wheel passenger engines to weigh 86,000 lbs. on drivers & 44,000 lbs. on truck; cylinders 20 ins. diameter x 26 ins. stroke, single expansion type; driving wheels, centres 66 ins. diam., of steel, mounted with crucible steel tires 3 ins. thick, finished diameter to be 72 ins.; boiler extended wagon top type, working pressure 200 lbs. per sq. in., heating surface not less than 2,200 sq. ft.; tender 8 wheels, tank capacity 5,000 imperial gals.; coal 17,000 lbs.; high speed air brake; steel brake beams, automatic couplers with spring buffer; weight with supplies approximately, engine 130,000 lbs., tender 45,000 lbs., water 50,000 lbs., coal 17,000 lbs., total 242,000 lbs.

Ten-wheel engines for heavy passenger & fast freight service to weigh 124,000 lbs. on driving wheels & 36,000 lbs. on truck; cylinders 20 ins. diam. x 26 ins. stroke; 3 of single expansion type & 2 compounds of the 2 cylinder class; 6 driving wheels, centres 63 ins. diam., steel, with open hearth steel tires 3 ins. thick, middle pair without flange, finished wheel, 69 ins. diam.; wheel base driving 15 ft. 4 ins., rigid 15 ft. 4 ins., total wheel base 26 ft. 11 ins.; boiler extended wagon top, working pressure 200 lbs. per sq. in., heating surface not less than 2,200 sq. ft.; tender 8 wheels, air brake quick action, double spring buffer with coupler, other details same as passenger tenders; weight with supplies approximately, engine 160,000 lbs., tender 45,000 lbs., water 50,000 lbs., coal 17,000 lbs., total 272,000 lbs.

Sleeping coaches 70 ft. long, with vestibuled platforms, trucks 6 wheels, decks of imperial design, triple windows arched over in clear story, stateroom at one end, Westinghouse high speed air brake.

Parlor cars 65 ft. long, with vestibuled platform at one end, other end to have observation platform 7 ft. long, end of body being set back for purpose, less sides and roof which remain; truck 6 wheels; ceilings of upper & lower decks imperial design, triple windows arched over in clear story, lavatory apartments at one end; drawing room; smoking room; dividing partitions between parlor & rooms; chairs of revolving & reclining pattern; Westinghouse high speed air brakes.

First class passenger coaches, body 60 ft. long, with vestibuled platforms, trucks 4 wheels; ceilings of upper & lower decks of imperial design; triple windows; smoking room; Westinghouse high speed air brakes; seats standard plush high backs, wood frames; smoking room seats strong leather covering.

Second class passenger coaches, body 60 ft. long; vestibuled platforms; trucks 4 wheels; half of body to be partitioned off for smoking room; Westinghouse high speed air brakes.

Baggage mail & express cars, body 60 ft. long, with vestibuled platforms, 4 wheels, interior divided into 3 for baggage, mail, & express; Westinghouse high speed air brakes.

Box cars 70,000 lbs. capacity; length 37 ft.; cars to have an excess capacity of 6,000 lbs. inside for grain carrying.

Cattle cars 50,000 lbs. capacity; length 37 ft.; quick action air brake.

Platform cars 60,000 lbs. capacity; length 37 ft.; excess capacity 6,000 lbs.; air brake. Conductors' vans, body length 28 ft.

Refrigerator cars, length 36 ft. inside; capacity 70,000 lbs. or over; gross weight not to exceed 112,000 lbs.; quick action air brake.

Grand Trunk Equipment.

The Co. recently placed an order for 500 box cars, not 2,000, as stated in the daily press, to be built at its Montreal shops.

Five more first-class passenger cars of the 800 series, as described in our Jan. issue, pg. 11, have recently been turned out from the Montreal shops.

The Co. will build at its Montreal shops this year 24 simple mogul locomotives, similar to those built last year. They will have cylinders 20 in. by 26 in.; drivers 62 in. in diam., & a total weight of 159,068 lbs., of which 135,480 lbs. will be on the drivers. The boilers will be of the extended wagon top type, with a working steam pressure of 200 lbs. There will be 283 charcoal iron lap-welded tubes, 2 in. in diam. & 143 in. long. The fireboxes will be of steel, 120 ins. long & 40½ in. wide. The tank capacity for water will be 4,500 gals. and the coal capacity 20,000 lbs.

During the past year the Co.'s shops at Montreal were very busy. Full time has been the rule, a large number of engines & cars have been turned out, & hundreds of cars have been repaired. The following rolling stock was built in the car shops & put in operation during 1899. Two composite cafe-parlor cars, composed of drawing room, seating 12 persons, a dining room to accommodate the same number, buffet & smoking rooms, with large & commodious separate toilet rooms for women & men. These cars run on the day expresses between Montreal & Toronto. Luncheon is served in the dining

room compartment any time during the day, thus obviating the necessity of passengers leaving the train for refreshments while en route between the two cities, & saving a considerable amount of time in the run, the 333 miles now being made in a little over 8 hours. Seven 1st class modern coaches of the 800 series & 2 composite 2nd class & baggage cars were built & added to the rolling stock. Other cars turned out of the Montreal shops were 230 box, 200 flat, 153 coal (all of a capacity of 30,000 tons), & 50 cinder cars. On the Middle Division two of the latest & most approved dining cars replaced those of a more ancient pattern. They are beautifully fitted throughout, & the interior decorations are of handsome design without any gaudy effect. Meals are served on these cars a la carte.

Ten cabooses have been built at the Montreal shops. They are very comfortably fitted up, having seats on each side with heavy plush cushions, which can be utilized as lounges when needed. A stove with oven attached is provided in each van for the convenience of the men in providing their meals. Each van also contains an ice box, a commodious writing desk & a roomy wardrobe the whole height of the van.

The repairs in the Montreal shops included 916 passenger cars & 4,573 freight cars, & 3,240 freight cars were equipped with M.C.B. automatic couplers & Westinghouse air brakes. All the new passenger equipment is fitted with wide vestibule, the Co.'s standard platform & buffing arrangements. They have also all other latest conveniences & safety appliances.

In the motive power shops the following engines were built & placed in service: Six 10-wheel large passenger locomotives, 6

8-wheel large mogul locomotives for hauling freight, & 10 locomotives of smaller type. In addition to these the Co. purchased from the Baldwin Locomotive Works 10 compound consolidation freight engines, which are now in operation on the different divisions of the system. At present the motive power shops are in the throes of a busy season, & hundreds of men are to be seen working on 24 large mogul locomotives now in course of construction.

Railway Equipment Notes.

The Bay of Quinte is having 10 flat cars built with 60,000 lbs. capacity.

The Central Vermont is building a few cinder & some flat cars at its shops at St. Albans, Vt.

The Algoma Central has recently placed an order for 50 steel cars of 100,000 lbs. capacity.

It is likely the Kingston & Pembroke will order a 75 ton mogul locomotive & 30 flat cars.

The Quebec Central is said to want 7 or 8 passenger cars & about 150 box & some platform cars.

The South Shore is said to be in the market for 2 locomotives, & will probably want 50 box cars soon.

The Dominion Atlantic has recently built 25 large coal cars & 2 cattle cars at its shops at Kentville, N.S.

The Minneapolis, St. Paul & Sault Ste. Marie management states it is not in the market for passenger cars.

C. P. R. LANDS.

The Canadian Pacific Railway lands consist of the odd-numbered sections along the Main Line and Branches, and in Northern Alberta and the Lake Dauphin District. The Railway Lands are for sale at the various agencies of the company in Manitoba and the North-West Territories at the following prices:

Lands in the Province of Manitoba average \$3 to \$6 an acre.

Lands in Assiniboia, east of the 3rd meridian, average \$3 to \$4 an acre.

Lands west of the 3rd meridian, including the Calgary District, generally \$3 per acre.

Lands in Northern Alberta and the Lake Dauphin District, \$3 per acre.

TERMS OF PAYMENT.

The aggregate amount of purchase money and interest is divided into ten instalments, as shown in the table below; the first to be paid at the time of purchase, the second two years from the date of purchase, the third in three years, and so on.

Interest on the outstanding purchase money is payable in one year, except in case of an actual settler who breaks up at least one-sixteenth of the land within that time. No rebate of interest is allowed on hay or grazing lands.

The following table shows the amount of the annual instalments on a quarter section of 160 acres at different prices under the new conditions:

160 acres at \$3.00 per acre, 1st instalment \$71.90, and nine equal instalments of \$60.
160 acres at \$3.50 per acre, 1st instalment \$83.90, and nine equal instalments of \$70.
160 acres at \$4.00 per acre, 1st instalment \$95.85, and nine equal instalments of \$80.
160 acres at \$4.50 per acre, 1st instalment \$107.85, and nine equal instalments of \$90.
160 acres at \$5.00 per acre, 1st instalment \$119.85, and nine equal instalments of \$100.
160 acres at \$5.50 per acre, 1st instalment \$131.80, and nine equal instalments of \$110.
160 acres at \$6.00 per acre, 1st instalment \$143.80, and nine equal instalments of \$120.

DISCOUNT FOR CASH. If land is paid for in full at time of purchase, a reduction from price will be allowed equal to ten per cent. of the amount paid in excess of the usual cash instalment.

Purchasers paying any instalment, or more, one full year before the date of maturity, will be allowed a discount on the amount of the instalment or instalments so paid at the rate of six per cent. per annum.

Interest at six per cent. will be charged on overdue instalments.

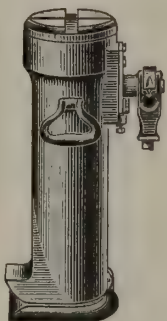
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F. T. GRIFFIN, - Asst. Land Commissioner,
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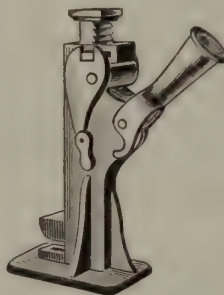
50 STYLES. 8 TO 70 TONS CAPACITY.



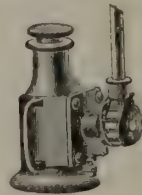
40 Ton Jack.



10 Ton Automatic Lowering Jack.



15 Ton Track Jack.



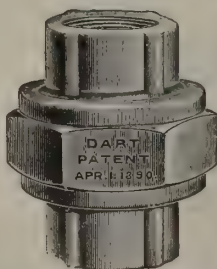
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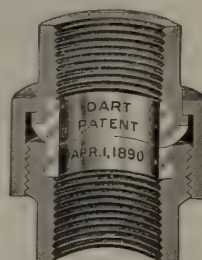
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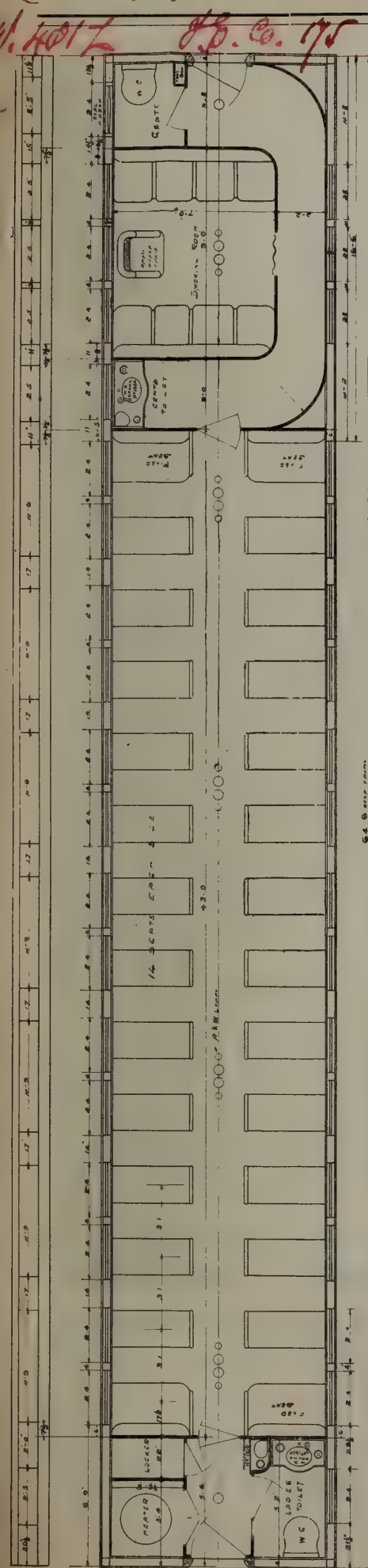
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FLOOR PLAN FIRST CLASS PASSENGER CAR, CANADIAN PACIFIC RAILWAY.

Rhodes, Curry & Co., Amherst, N.S., are building 40 platform cars of 60,000 tons capacity for the Dominion Steel Co.

The Canadian Northern will be in the market this spring with a miscellaneous order for equipment, but no announcement has yet been made as to what it will consist of.

The Baldwin Locomotive Works has about completed the second 65-ton engine ordered by the Esquimalt & Nanaimo for handling coal cars. The E. & N. has recently purchased 300 coal cars.

The Newfoundland Ry. is having four 10-wheeled locomotives built at the Baldwin Locomotive Works. Following are the general dimensions: Cylinders, 17 x 22 in.; gauge, 3 ft. 6 in.; driving wheels, 50 in. in diameter; tank capacity, 2,800 gall.; weight in working order, total about 91,000 lbs., & on drivers, 73,500. Delivery is to be made in Feb. & April.

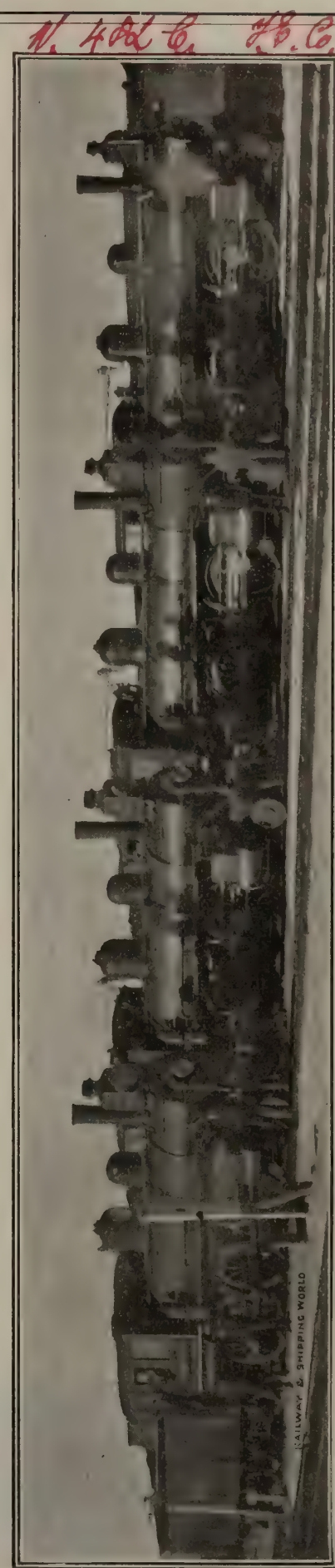
The Michigan Central has recently completed at its St. Thomas, Ont., shops a 10-wheel locomotive. The cylinders are 19½ x 26 ins., & the total weight is 146,700 lbs., of which 112,900 lbs. are on the driving wheels. The driving wheels are 63 in. in diameter. The total heating surface is 2,484.35 sq. ft., of which 2,329.60 sq. ft. are afforded by 320 tubes 2 in. in diameter & 14 ft. long, & 154.75 sq. ft. by the fire box. The working pressure is 180 lbs. The weight of the tender empty is 46,550 lbs., & loaded 110,000. The water capacity is 5,100 gall. & coal capacity 10 tons.

The Canada Atlantic will, it is said, build 700 box cars of 70,000 lbs. capacity at its Ottawa shops this season. The shops were shut down recently on account of scarcity of material, but will soon be re-opened, when about 400 men will be employed & 4 or 5 cars a day will be turned out. It is said that no locomotives or passenger cars will be added to the rolling stock this year. The locomotives are being overhauled in preparation for the busy season. Thirty cars, 40 ft. long, with a capacity of 70,000 lbs., have recently been completed at the Ottawa shops for use in President Booth's log traffic between the Upper Parry Sound district & Ottawa.

The heavy compound decapod locomotive mentioned in our last issue as being ordered by the Minneapolis, St. Paul & Sault Ste. Marie Ry. from the Baldwin Locomotive Works, will be delivered in Aug. It will have cylinders 17 in. & 27 in. x 34 in.; drivers 55 in. in diam., & will weigh 210,000 lbs., of which 190,000 will be on the drivers. The boiler will be of the extended wagon top type with radial stays, & a working steam pressure of 215 lbs. The tubes will be of charcoal iron, 2 in. in diam.; the firebox will be 121 in. long & 42½ in. wide. The tank capacity for water will be 6,000 gals. & the coal capacity 9 tons. The special equipment will include Westinghouse air brakes.

General Manager Pennington, of the Minneapolis, St. Paul & Sault Ste. Marie, states that the two-cylinder compound locomotive which has been in passenger service for some time, is making an excellent record. This engine runs on train 108 from Harvey, which it leaves at 6.05 a.m., to Camden place, which it reaches at 6.10 p.m., a run of 12 hrs. & 5 min. The train consists of 9 cars, which makes a train tonnage of 349 6-10. There are 55 stops, with an average mileage of 7.14 between each one. The speed is 52 miles an hour, with a maximum of 67. It is notable that this is a regular continuous run, & it is said that hot bearings on this engine are practically unknown.—Railway Engineer.

Northwest Railway Lands.—On Feb. 20, the House of Commons adopted the following resolution, moved by F. Oliver, M.P. for Alberta:—"That in the opinion of this House, all lands earned by railway companies in the Northwest should be allotted & patented to them forthwith, so that they may begin as



MOGUL LOCOMOTIVES RECENTLY BUILT AT THE INTERCOLONIAL RAILWAY SHOPS, MONCTON, N.B.

soon as possible to bear their share of taxation for schools & for making road improvements in the Northwest Territories."

Canadian Pacific Equipment.

About 2,000 cars were added to the Co.'s equipment during 1899.

The Co.'s Hochelaga & Farnham shops are running full force repairing passenger coaches. The shops at Perth are fully occupied in turning out new box cars.

The Co. anticipates completing & equipping between now & July 1st, 4,000 freight cars with Westinghouse air brakes & M.C.B. couplers, to comply with the Interstate Commerce law. The work will be done at Hochelaga, Outremont, Farnham, McAdam Jct., Carlton Jct., Toronto Jct. & Winnipeg.

At the Co's Montreal shops 10 passenger locomotives, 10 switching locomotives & a number of freight locomotives are now under construction. It is among the probabilities that these shops will be considerably extended at an early date by the erection of up-to-date, roomy buildings, so as to accommodate the growing necessities of the Co.

An order has been placed in the U.S. for building 200 coal cars for the Crow's Nest Pass line. Following are the dimensions: Length, 35 ft. 7 in.; width, 9 ft. 11 in.; length of hopper inside, 35 ft. 1 in.; width of hopper inside, 8 ft. 5 in.; height of hopper inside, 4 ft. 2 3/4 in.; height of car from rail, 8 ft. 4 in.; 4 hopper doors; trucks, all metal diamond pattern.

On pg. 45 is a floor plan of 1st-class passenger coaches nos. 600 & 601, recently turned out of the Co.'s Hochelaga shops, & orders have been given for building 8 additional similar ones there. These cars are 64 ft. 6 ins. over frame, & are equipped with wide vestibules, 6 wheel trucks, triple brakes with 14 in. cylinders, & in addition to lamps are wired for electric light. They are magnificent in appearance. The woodwork is all mahogany, bright-polished & inlaid. The passenger compartment contains 28 double seats, upholstered in terra-cotta plush, with extra high backs. The feature of the cars is a new style of dome roof, with globe ventilators. All the furnishings are of the most modern style, & the large brass hat-racks are ornamental as well as useful. The roof is plush from end to end, & the seats are so arranged that all the passengers can face the engine. The toilet-rooms for women & men are at opposite ends of the car, the men's being next the smoking-room. The smoking-room is isolated from the regular passenger compartment, the same as in a sleeping-car, so that passengers passing from one car to the other will not disturb the smokers. This compartment is very roomy, and contains 10 separate seats, upholstered in Russia leather, as well as a comfortable rattan easy chair. A heavy rich olive green portiere hanging in the doorway hides those in the doorway from anyone passing through the cars.

W. Mackenzie & D. D. Mann, of Mackenzie, Mann & Co., have gone to England.

Intercolonial Railway Equipment.

Six 1st class passenger cars were received during January.

It is said that 100 box cars of 60,000 lbs. capacity are to be built at the Moncton shops, & that work on them will be started at once.

The 500 box cars ordered in Dec. will be of 60,000 lbs. capacity, 35 ft. long, 8 ft. 11 in. wide & 6 ft. 11 in. high. The specifications call for Westinghouse air brakes.

The illustration on pg. 45 shows 4 mogul locomotives for freight service recently turned out of the Moncton shops. Their erection began Oct. 2, 1899, & they were completed Jan. 8. Following are the principal dimensions: Cylinder, 18 in. x 24 in.; driving wheels, 57 in.; boiler, extension wagon top, 53 in. diam. at smallest course; fire grate, 5 ft. 10 1/2 in. x 2 ft. 10 1/2 in.; tubes, 196, 2 in. diam. x 11 ft. 10 in. long; tender tank, 3,500 imperial galls. It is said orders have been placed for building some more locomotives at Moncton, but we have no official information in regard to them.

RAILWAY APPOINTMENTS, Etc.

Algoma Central.—W. B. Rosevear has been appointed assistant to President Clergue.

Alex. Gibson Ry. & Mfg. Co.—F. L. Robinson has been appointed Auditor & General Passenger Agent, with office at Marysville, N.B., succeeding A. McN. Shaw, resigned.

Canada Atlantic.—J. E. Duval, heretofore Chief Despatcher, has been appointed Car Service Agent with office at Ottawa. In addition to the regular duties of Car Service Agent, he will have charge of car mileage accounts, formerly looked after by the General Auditor, & will also receive the 4 o'clock car report, & direct the distribution of cars.

Canadian Pacific.—W. F. Tye, who has been Manager of Construction of the Columbia & Western Ry., has been appointed Chief Engineer of Construction for the Co.'s entire system, with headquarters at Winnipeg for the present. He will have charge of the construction of all lines, & it is understood that he will fully complete any that may be built, not turning them over to the operating department until they are thoroughly finished.

P. J. Dennis has been appointed Engineer in charge of maintenance over the entire system. It is understood that his duties will relate to track maintenance & that he will report to the Assistant General Manager.

J. R. Sullivan, who has been Assistant Engineer of the Columbia & Western Ry. extension from West Robson to Midway, has been appointed Division Engineer of that branch.

Capt. J. W. Troup, Superintendent of the Co.'s Columbia & Kootenay steamers, has also been given charge as Superintendent of the consolidated branch lines in the Kootenay district, including the Columbia & Kootenay

Ry., Slocan branch, Nakusp & Slocan Ry.; Rossland branch, Columbia & Western Ry., & Boundary Creek branch. The steamboat lines under his jurisdiction include the Columbia River & Arrow Lakes, & Slocan, Kootenay & Okanagan lakes. H. E. Beasley who has heretofore been Superintendent at Nelson, has been transferred to the Co.'s head office in Montreal, where it is understood he will be located in the President's office. It is said that F. P. Gutelius, heretofore Superintendent of the Rossland branch, will be appointed to a position in the Engineering Department.

D. O. Lewis has been appointed Division Engineer of the lines in the Kootenay district, B.C.

J. F. Hamilton has been appointed Trainmaster in the Kootenay district, B.C.

Captain E. F. Gore has been made Port Captain at Nelson, B.C.

W. Wallace, Roadmaster at Ottawa, having left the Co.'s service, the district formerly under his jurisdiction has been divided between Roadmasters J. M. Guenette & J. Jelly. Roadmaster Guenette's division embraces the Montreal & Ottawa line & the Chaudiere & Prescott branches. Roadmaster Jelly's division embraces the main line from Ottawa to Chalk River, & the Brockville & Atlantic & Northwest branches.

Hayter Reed, for many years connected with the Dominion Indian Dept. in the Northwest Territories, afterwards Deputy Superintendent General of Indian Affairs at Ottawa, & now Manager of the St. James Club, Montreal, has been appointed Manager of the Chateau Frontenac Hotel, Quebec.

Central Vermont.—R. L. Burnap has been appointed Commercial Agent at New York City, vice F. S. Holbrook, resigned. Office at 88 Wall street.

Duluth, South Shore & Atlantic.—T. W. Smith has been appointed Assistant Superintendent of the Mackinaw division & of the Mineral Range Ry.

Grand Trunk.—F. E. Rankin has been appointed Claim Attorney for the system lines west of the Detroit & St. Clair rivers, with office at Room 14, Buhl Block, Detroit, Mich. He will have charge of the investigation & settlement of all claims arising in connection with personal injuries, fires, & stock killed on those lines.

P. J. Lynch having been transferred, the office of Trainmaster, 6th & 7th districts, is abolished.

W. G. Brownlee has been appointed Assistant Superintendent, 6th and 7th districts, in charge of matters pertaining to transportation; office, Belleville, Ont. Mr. Brownlee was heretofore Division Superintendent of the Missouri Pacific at St. Louis, Mo.

F. W. Gieselman, heretofore at the Co.'s Dearborn st. station, Chicago, has been appointed Baggage Master at Bonaventure station, Montreal, vice McCallum, retired.

The resignation of S. Walker as foreman of

Richmond Locomotive and Machine Works,

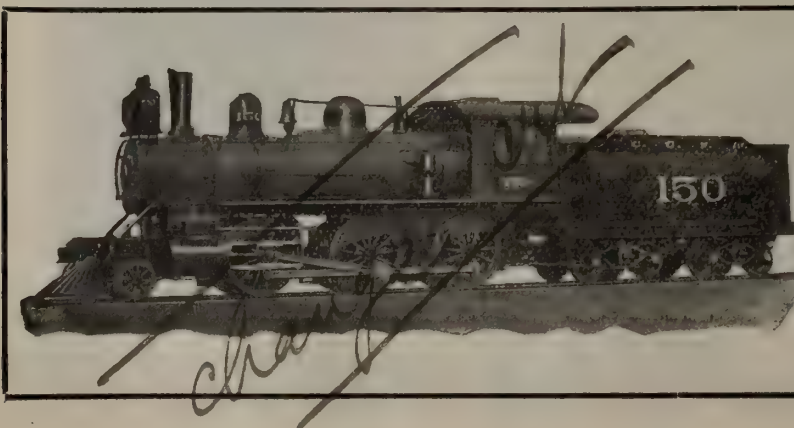
RICHMOND, VIRGINIA, U.S.A.

BUILDERS OF

Simple and Compound

LOCOMOTIVES

Adapted to every variety of service.



the erecting shop at Montreal, has resulted in the following changes among the foremen: Foreman of erecting shop, J. Farrar; assistant pro tem, R. Cowan; foreman of machine shop, J. Millington; assistant, F. Dalrymple; foreman of wheel shop, A. W. Dutton.

A recent daily press item stated that Dr. R. A. Towns, of Sarnia, Ont., had been appointed Medical Adviser to the Western division of the G.T.R. We are officially informed that there is no truth whatever in the statement.

It is understood that G. B. Reeve, General Traffic Manager of the G.T.R. system & of the Central Vermont Ry., will resign his positions, to take effect at the end of April, & that he will reside in California in future. No announcement has been made as to who will succeed him.

Great Northwest Central.—L. A. Hamilton, Land Commissioner of the C.P.R., has been also appointed Land Commissioner for this Co., whose line is being leased to the C.P.R. in perpetuity.

Michigan Central.—E. D. Bronner, heretofore Assistant Superintendent of Motive Power & Equipment, has been appointed Superintendent of the same, succeeding Robt. Miller, who has been in the Co.'s service since 1876, occupying the positions of Master Car Builder, Assistant General Superintendent, General Superintendent, & Superintendent of Motive Power & Equipment.

Northern Pacific.—G. W. Hardisty has been appointed District Freight & Passenger Agent at Montreal, succeeding T. Henry, who has entered the service of the R. & O.N. Co.

Pullman Co.—In the amalgamation of the Pullman Palace Car Co. & the Wagner Car Co. the corporate name has been changed to the Pullman Co. The Pullman staff in Canada has been retained in its entirety; the office & staff of the Wagner Co. at Montreal has been abolished, & the former Wagner Superintendent & Assistant Superintendent have been assigned to other duties in the Pullman Co.'s service. Division Superintendent J. S. Merrill, New York, has jurisdiction over the Pullman lines in Canada, & the Division Superintendent at Montreal has supervision of all Pullman lines in Canada, taking in the Grand Trunk, Canada Atlantic, & joint lines running over the C.P.R. on which Pullman cars are run, & also of the lines running into Montreal & Toronto from New York & Boston. The officials at the Montreal office are W. A. Ritchie, District Superintendent; G. A. Temple, Assistant District Superintendent; W. B. Fisher, Receiving Cashier. The agency at Toronto hitherto held by a G.T.R. official, was filled by the appointment of T. B. Montgomery, who has, however, resigned to take a commercial position in Chicago & has been succeeded by M. C. Dawson, formerly Wagner Superintendent at Montreal.

H. M. Pflager, heretofore Chief Mechanical Inspector, has been appointed Mechanical Superintendent, with headquarters at Chicago, Ill.

White Pass & Yukon.—J. R. Van Cleve, has been appointed Master Mechanic. He has been Master Mechanic of the Great Northern at Kalispell, Mont.

Mainly About People.

Sir Wm. Van Horne spent most of Feb. in Cuba.

C. R. Mackenzie, for many years Superintendent of the Shedden Co. at Toronto, died there Feb. 5.

E. J. Coyle, Assistant General Passenger Agent of the C.P.R. at Vancouver, has been enjoying a holiday trip in the east.

D. D. Mann, of Mackenzie, Mann & Co., has bought 166 St. George St., Toronto, & will remove there from Montreal in the spring.

W. R. Baker, General Manager of the Manitoba & Northwestern Ry., is spending some time in England, accompanied by Mrs. Baker.

A. G. Blair, jr., eldest son of the Minister of Railways, was married at St. John, N.B., Jan. 17, to a daughter of Dr. Holden, of that city.

Mrs. T. G. Shaughnessy gave a brilliant ball at the Place Viger Hotel, Montreal, Jan. 16, for her daughter, who is one of this year's debutantes.

C. S. Proctor, Travelling Passenger Agent of the G.T.R. at Toronto, was married at Collingwood, Ont., Feb. 14, to a daughter of Capt. Campbell.

J. R. Cowans, General Manager of the Cumberland Ry. & Coal Co. of N.S., was married in Montreal, Jan. 31, to Miss McLeod, of Springhill, N.S.

Mrs. G. B. Reeve, of Montreal, wife of the General Traffic Manager of the G.T.R., left on Feb. 16 for California, accompanied by her children, to spend the winter there.

G. E. Tuckett, President of the G. E. Tuckett & Son Co., tobacco manufacturers, Hamilton, Ont., who died there Feb. 19, was also President of the Hamilton Steamboat Co.

R. Marpole, General Superintendent of the Pacific Division of the C.P.R., spent Feb. in California, accompanied by his two sons, enjoying the first holiday he has had for many years.

G. Simpson, Assistant Engineer of the Northern Pacific Ry. at Winnipeg, has been appointed Provincial Government Engineer for Manitoba and Chief Clerk of the Public Works Department.

Mr. Ross, formerly of the Anglo-American Telegraph Co. at St. Pierre, and latterly for a number of years Manager of the Panama Telegraph Co. at St. Thomas, W.I., died Jan. 14 at St. Kitts, of dropsy.

G. C. Cunningham, General Manager of the Central London Ry., & formerly Manager of the Montreal Street Ry., has joined the Advisory Committee of the Tramway & Light Railways Exhibition, to be held in England shortly.

J. A. Cuttle, who was appointed temporarily as manager of the Montreal Transportation Co., succeeding D. G. Thomson, has been confirmed in the position. A. Kingman & B. McLennan have been appointed directors to fill vacancies on the board caused by deaths.

J. C. Moorehead, formerly Assistant Superintendent of the Michigan Central, has been appointed General Manager of the Ohio division of the Erie R.R., with headquarters at Cleveland, Ohio. He has also been appointed General Manager of the Chicago & Erie R.R.

Jas. Charlton, who recently retired from the position of General Passenger & Ticket Agent of the Chicago & Alton, after more than 28 years' service, was presented with a loving cup on Jan. 30 by the members of the Western Passenger Association at a luncheon given to him in Chicago, & attended by over 30 members of the Association.

It is said that in recognition of the excellent work done by them in connection with the construction of the Columbia & Western Ry., between West Robson & Midway, B.C., the C.P.R. Co. has liberally bonused the engineering staff, Chief Engineer & Manager of Construction Tye getting \$5,000, Assistant Engineer Sullivan \$1,000, & the divisional engineers \$500 each.

F. G. Jonah has been appointed engineer in charge of maintenance of way of the Chicago & Alton Ry., at Chicago. He was born at Moncton, N.B., in 1864, and entered the Chief Engineer's office of the Intercolonial Ry. in 1882. He was at first assigned to office duties, but subsequently acted as chainman, rodman, etc., on surveys of various

branch lines. He served in the maintenance department until 1887, when he was made Assistant Engineer in charge of the construction of a division of the Oxford & New Glasgow, a branch of the government system in N.S. Upon the completion of this work in 1889, he re-entered the maintenance department of the I.C.R. He became Assistant Engineer of the Merchants Bridge & Terminal Ry. in St. Louis in 1890, & held that position until 1894, when he became Resident Engineer on the St. Louis & Eastern, now the St. Louis, Peoria & Northern. He had charge of building that line between Springfield & Peoria. On the recent absorption of the line by the Illinois Central & the Chicago & Alton, he was transferred to the latter road.

The Niagara Gorge Railway.

G. A. Ricker, who was Chief Engineer of the Niagara Falls & Lewiston Ry., read a paper in June last before the Engineers' Club, of Philadelphia, which contained some very interesting matter. B. Fenton & E. Bennett first proposed to build a steam railway with a gauge of 30 ins., from Prospect Park to the Whirlpool, & the Niagara Falls & Whirlpool Co. was organized. The Co. failed in its efforts to purchase a right of way, & on instituting condemnation proceedings the courts held that it did not meet the requirements or the railway law so as to entitle it to exercise the right of eminent domain. In 1889 Capt. J. M. Brinker, of Buffalo, organized the Niagara Falls & Lewiston R.R. Co., which purchased the stock of the old company. It decided to build a double track standard gauge road to connect with the electric & steam railways entering Niagara Falls & with the ferry at Lewiston. A survey was completed in Sept., 1890, & the right of way bought, the Co. securing the fee of the land. Mr. Schoellkopf, of the Niagara Falls Hydraulic Power & Manufacturing Co., opposed the plan to carry the road along the bank in front of his mills, but was defeated in the courts. He then suggested carrying the line up the high bank into the town, which plan was adopted & the location in front of the mills abandoned. The right of way was very expensive; the total cost is not given, but \$119,000 was paid for Buttery elevator & \$90,000 for the Van Horn & Grand View elevators. Mr. Ricker describes the construction of the road as follows:

"In order that we may better understand the actual operation of building, I will refer briefly to the geology of the Gorge. For our purpose the Gorge may be best considered as made up of three distinct sections; the upper or newly made channel excavated by the constantly receding falls; the middle or original channel, which is of preglacial origin, & the lower or postglacial channel. The characteristics of the typical cross sections of these three channels are widely different. The preglacial section is of least width, & has nearly vertical walls extending almost to the water on the United States side. The postglacial section is wider & has vertical walls to about one-third the depth of the Gorge, & steps down to the water which are covered with debris that has accumulated by regular contribution from the exposed walls above. The new system, which extends southerly from the railroad bridges, is much wider than the preglacial channel & has slopes or talis reaching nearly to the tops of the cliffs. This debris is much deeper than that resting on the steps of the lower channel, & no excavation has as yet been made of sufficient depth to disclose the steps.

"The river is now flowing through the Medina sandstone, which underlies all western New York. The railway at frequent intervals passes through sections of sandstone, & practically all the rock excavation was made in the quartzose belt of this stratum. Above the

sandstone lies the Clinton limestone, over the Niagara shale, & at the top of the cliff, the Niagara limestone. While the railway follows the irregular line of the foot of the talus from the whirlpool to Lewiston, the directions of the entire channel form, roughly speaking, 4 tangents. The new channel is about 2 miles long & extends approximately northeasterly from the present fall to the railway bridges. The preglacial channel is about a mile in length from the bridges northwesterly to the Whirlpool. The waters leave the Whirlpool in a direction nearly at right angles to that at which they enter, & continue northeasterly to the Devil's Hole, a distance of about 2 miles, & from Devil's Hole to Lewiston, about 2 miles more, running almost due north. The continuation of the preglacial channel, known as St. David's, lies directly to the northward in the extension of the line of the Whirlpool Rapids, & is plainly marked, but is nearly filled with glacial drift.

"About April 1, 1895, an agreement was entered into with Cragg & Tench, contractors of Buffalo, to build the Gorge railway in which the contractors were to secure the men, furnish all necessary tools, & their services, for 10% of the force account. After 5 tedious years of waiting the Co. suddenly decided to proceed with construction, & I received a telephone message from President Brinker to the effect that "the graders would be at Lewiston to start work to-morrow morning," & asking me to be on hand to give necessary directions. Construction was begun at Lewiston on April 11 & a few weeks later at several points along the line between Lewiston & the Buttery Elevator. Beyond a profile, which it was afterward found impracticable to follow, no plans were made as the result of the original survey.

"I am now confronted with a task more difficult than that of building the railway—how to tell you in engineering terms of the construction of this road that was built in a most unscientific manner. My orders were to put a railway in this unpromising place, & I proceeded forthwith to obey. Before stakes were set a path was graded, following, as nearly as possible, a few feet above the proposed grade-line, & gangs of laborers were placed at frequent intervals. No reliance

could be put upon any slope made outside of the natural slope. Had classification been attempted, but two kinds of material would have been named: loose & solid rock, as the talus is made up of large & small stones with not sufficient earth to fill the interstices, & with no cementing material, although the roots of dense vegetation tend to hold it in place & maintain a much stronger slope than would otherwise be possible. The deep channel of the river afforded the very best place for wasting the material excavated & work proceeded rapidly. From 600 to 1,000 men were employed, & the first five miles to Buttery elevator roughly completed, & one track laid, & the first train entered this temporary southern terminus August 25. On the inner side of the roadbed such a slope was formed as would stand for the time being, which, of course, meant that the heavy rains & the frost in the coming spring would bring down large quantities of material left on the steps above. Cross-overs were placed at such points as seemed to threaten most, & from time to time, as slide occurred, the road was operated with single track in that section, & large numbers of men quickly removed the encroaching talus. Several slides took place in the early spring of 1896 & again in the spring of 1897. The quantities decreased each year. A view of the slide of the spring of 1898 at the same point where occurred the greatest encroachment in '96 & '97, shows how surely the slopes are being reduced to an angle of repose & are taking on the appearance of stability. New vegetation adds greatly to their permanence & more agreeable appearance.

"Coming out of Lewiston at the south line of the village is a timber trestle 104 ft. in length & 42 ft. high, crossing a small stream flowing into the river from the foot of the Lewiston escarpment. A little further up the line is a timber trestle carrying the tracks over a deep gully formed by another lateral stream, into which for many years the New York Central R.R. has wasted its surplus earth & rock. It was my intention to use 80-ft. girders at this point, but owing to the crowded condition of the bridge shops, delivery could not be secured in several months, & as the Co. was extremely anxious to open the

road to catch the summer traffic, installation of the permanent structure was deferred. In the expectation that a large amount of water would filter through the talus, a great many open culverts were put in, but 4 years' experience has proved that the danger from this cause was overestimated. These culverts, to be effective, should be movable, as a boulder or other obstacle falling in the path of a stream high up on the talus will often divert the stream many feet from its former bed, & leave the culvert high & dry. The track is ballasted with rock borrowed from the talus over most of the line. The ties are of cedar, except on steep grades, where oak was used, & the rails weigh 60 lbs. to the yard. No attempt was made at mathematical alignment, as the roadbed followed the irregular outline of the natural slope.

"Construction from the Buttery elevator to the City of Niagara Falls was much more difficult than upon the lower 5 miles of the road. South of the elevator began almost vertical cliffs, extending from the top of the escarpment to the rapids below & continuing for a distance of about half a mile to the railway suspension bridge. Drills & men were lowered over the cliff to the first ledge, about 100 ft. above the grade line, & blasting operations carried on mostly by hand, as it was difficult to get steam drills into position. The blasts were fired usually at noon, & huge quantities of rock were thrown into the river, disappearing beneath the tumbling waters of the rapids below, without appearing in any way to obstruct the stream or to change in the slightest degree the form of the waves. The vertical cuttings averaged nearly 100 ft., & estimated roughly, fully 100,000 cu. yds. of rock were thrown into the river from this section.

"At the site of the Van Horn elevator a deep recess in the cliff formed a bay across which an attempt was made to construct a roadbed in the swift current of the rapids. This experiment I believed would be futile, as a powerful stream of water was constantly discharged upon the embankment, diverted from the main current by a high boulder of Niagara limestone resting in the channel about 50 ft. from the cliff. It was evident that this bay had been excavated by the same powerful hydraulic agency, & it was useless



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to attempt to place in its way any structure less substantial than the cliff which it had cut out. During a period of extreme high water in the spring of 1897, when the river rose 19 ft. above its ordinary level, most of this embankment was washed away. In its place rough, but heavy, longitudinal walls were built to resist the encroachment of the current; spaces between the walls were refilled with stone & a stout timber trestle built to carry the tracks. In the spring of 1898 this structure was swept away, after which the Co. determined to do what it might have profitably done at first, & the old elevator-shaft was removed, the cliff blasted away, & a shelf made of sufficient width for a single track. Three timber cribs, each about 60 ft. in length, protect the roadbed at critical points above this bay.

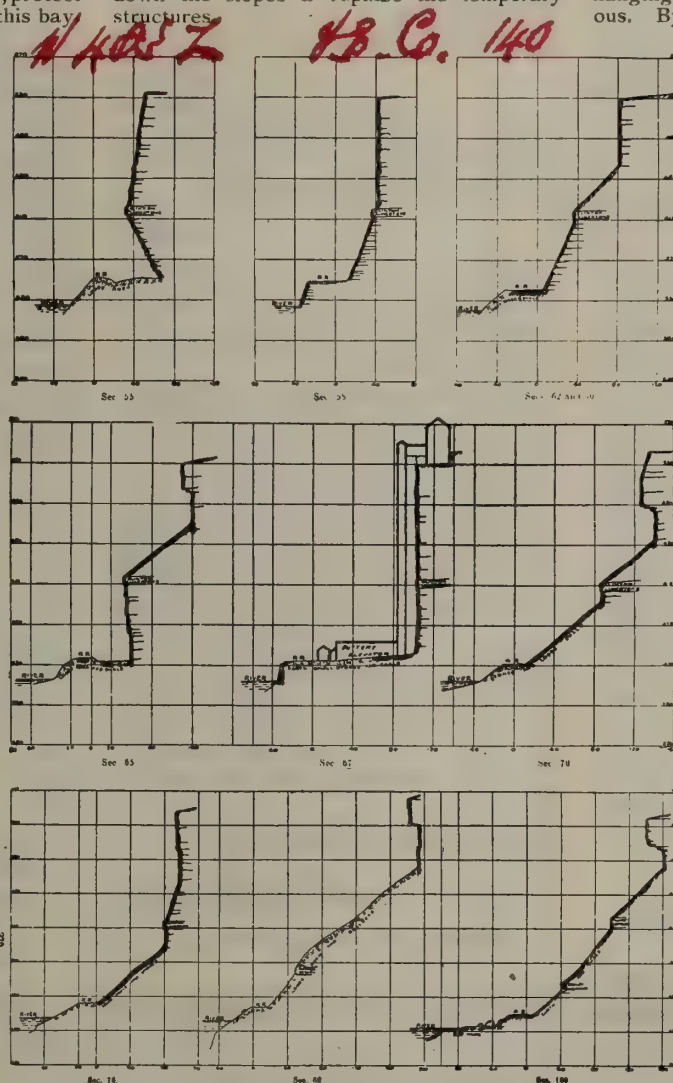
"Beneath the railway bridges a combination of difficulties was met. A small waterwheel under the Suspension Bridge, which furnished power for a flour-mill at the top of the bank, was rearranged to permit building the roadbed, the transmitting cable raised, & a portion of the tailrace changed & a retaining wall built to hold the embankment. Near this point is an inclined railway, the floor of which, resting directly over the centre line, was raised vertically about 15 ft. Between the incline & the cantilever bridge heavy walls were put in to hold back the loose rock on the inner side of the track, & retaining walls built on the outer side to prevent encroachment upon the head race.

"Permission was obtained from the Michigan Central R.R. to build abutments on both sides of the cantilever bridge piers and a central pier in front of & between their piers. The underlying material at this point is composed of very large boulders, upon which rest the foundations of the cantilever bridge, between which & the deep waters of the river there were but 13 ft. in which to pass. To prevent possible danger to the bridge foundations, blasting was prohibited within 100 ft. on the south side & 50 ft. on the north. No soundings could be obtained on account of the swiftness & great depth of the current. Within this limited area, hedged about by restrictions, construction was made doubly inconvenient.

"From the bridges to the top of the high cliff, a distance of nearly a mile, the tracks are laid on a slowly ascending grade up the talus for about 3,500 ft.; thence entering the cliff & passing through a cut 60 ft. deep at the lower section, rising continually until the top of the bank is reached. The average gradient is 4.7, the maximum 6.4 % & the total elevation overcome, from the bridges to the top, is just 200 ft. Passing beneath the New York Central tracks, the line swings sharply to the right & paralleling the Central for a few hundred feet, reaches Second St. in Niagara Falls. At the southern end of Second St. connection is made with the Niagara Falls St. Ry. and thence over the tracks of the latter company to Prospect Park. The under-crossing of the Central is made at an angle of 55°; the bridge is of trough girder type and carries at present 5 tracks.

"I think you will grant that it was not practicable to make detailed plans for construction of this peculiar road. It was not possible to determine, with even approximate accuracy, how the unseen conditions might

alter proposed methods. I cannot say that any very serious engineering difficulties were met with, & I think there are no problems to be solved that will not be successfully met. The same vigor & energy which characterized the attack upon the ground were exhibited later in the effort to put the road in operation, & as gangs of men & construction tools would have been unsightly, work was suspended as suddenly as it was begun. You will recall the fact that wooden trestles & bridges had been put in place because the Co. was not willing to wait for permanent structures. The work was, therefore, left unfinished, but I was sustained by the vain hope that in the coming spring I should be permitted to scale down the slopes & replace the temporary structures.



SECTIONS OF THE NIAGARA GORGE.

"When 1896 arrived all our efforts were concentrated upon construction above the Buttery elevator, & this section, too, when nearly completed, was given over to operation in much the same incomplete form as was the lower. It was expected that immediate earnings would be so great that a goodly portion of them could be applied to completion of the work, but receipts proved disappointing, & all further work was suspended, excepting such as was necessary to clear the track of slides & to provide for maintenance. As the outcome of business complications the owners of the road were obliged to relinquish it a few months ago, & it passed into the hands of a receiver. Reorganization of the Co. is now being undertaken, & I am engaged in making the necessary repairs, which amount to a recon-

struction of the road, as considerable damage had been sustained by the track from slides & by the roadbed from the action of the river.

"A fall of rock that occurred in March, 1899, accounts of which appeared in the technical journals & in the daily papers, & called an avalanche, was greatly exaggerated. Before the road passed into the hands of the receiver I had recommended that some of the overhanging Niagara limestone just above the Buttery elevator be removed by blasting, as it seemed to be insecure. The railway was shut down; all people were warned not to walk upon the tracks, as it was intended before beginning operations to remove all overhanging rock which appeared to be dangerous. By reason of some blasting that was

going on near by, within 100 ft. of the point in question, where the city was excavating for a sewer, two large pieces of limestone were dislodged, falling between the tracks & the cliff without doing damage. A few days later our Superintendent blasted & threw off into the river the large boulders, which now rest in the margin of the rapids just outside of the tracks. A considerable amount of loose material, of course, fell with the boulders & covered the road for a distance of about 200 ft., a depth of from 3 to 5 ft. This was easily removed, & when taken away it was found that the rails were cut in several places, but that no great damage had been done, except to the lower portion of the shaft of the elevator, the casing of which had been carried away. Where these large rocks now stand in the river some difficulty had previously been found in maintaining the embankment, owing to the heavy current thrown against it, & a retaining wall about 400 ft. long had been resorted to for protection. With great good fortune these large rocks now stand directly in the way of the heaviest attack of this current, & the retaining wall is no longer necessary. In general it may be said in regard to falling rock that it comes down only in the early spring months, when, under the new management, it is not intended to operate the railroad.

"Since the opening of the road in 1895 to the present time no passenger or employe has ever received injury from falling rock. I was daily over the road during the construction, & have since been frequently from the Falls to Lewiston & return, both on cars & on foot, & have never seen a rock fall. It is my opinion that,

with due care, the maintenance of this railway need not be excessively expensive, & that the same safety of operation can be obtained as is secured on any mountain road."

The Montreal Elevator Syndicate.—The Conners Syndicate has awarded a contract to the Barnett & Record Co., of Minneapolis, to build at Montreal a steel elevator with a capacity of 1,000,000 bush. of wheat, & 2 annexes with a capacity for storing 2,000,000 bush. It is said the construction of these structures will involve an expenditure of nearly \$1,000,000. Plans are being prepared & it is expected that the first sub-contract for piling will be let at an early date. This will require 2,620 piles. Some 2,000 tons of steel will be used in the structures.

SHIPPING MATTERS.

Richelieu & Ontario Navigation Co.

At the annual meeting, Feb. 16, the following report was presented for the year ended Dec. 31, 1899:

	1899	1898
Gross receipts.....	\$828,322.96	\$728,943.97
Operating expenses.....	674,626.89	590,936.53
Fixed charges.....	24,966.00	25,979.89

Net profit.....\$128,730.07 \$112,027.55

Two semi-annual dividends of 3% each, amounting together to \$104,400, were paid, leaving \$24,330.07 carried to surplus. The gross earnings show an increase of \$99,378.99, due to the satisfactory condition of business generally & the improved facilities offered by the Co. to tourists. From the surplus of 1898 the directors have written off \$104,170.44, arising from claims now settled which have been in litigation for a number of years, & also from a reduction in valuation of some of the assets; leaving the accounts now free from all outstandings of every kind whatsoever.

The Co.'s hotel, at Tadousac, has been well patronized, & its business has continued very satisfactory. The directors having found a great want of good hotel accommodation at Murray Bay, are now constructing a large hotel at that point, which will be ready for the opening of next season.

The Co.'s new str. Toronto has realized, in regard to speed, economy, seaworthiness & attractive fittings, as well as in increased earnings, all that was anticipated. She was not ready as early as expected, which made some difference in the earnings of her route.

As indicated in last year's annual report, Parliament was asked at its last session, & has granted the power to increase the Co.'s capital to \$5,000,000. Under the deed of trust securing the Co.'s bonds issued in 1895, \$20,440.01 have been withdrawn & cancelled during the year, making a total to date of \$75,919.99, out of the original issue of \$571,833.33.

The directors are pleased to report the satisfactory condition of the Co.'s property, & of its relations with other transportation lines.

FINANCIAL STATEMENT.

ASSETS.

Steamers, real estate & buildings, wharves, etc.....	\$2,540,397.86
Coal, stores, provisions, etc.....	46,360.99
Accounts receivable.....	30,955.17

\$2,616,814.02

LIABILITIES.

Capital stock.....	\$1,740,000.00
Bonds 5% sterling.....	\$571,833.33
Less cancelled.....	\$75,919.99
In treasury.....	5,840.00
Bank loans.....	81,759.99
Accounts payable.....	490,073.34
Unclaimed dividends.....	165,803.17
Accrued interest on bonds.....	61,714.99
Surplus.....	111.00
	8,266.22
	150,846.30

\$2,616,814.02

INCOME ACCOUNT.

Dividend 6%, paid May 2 & Nov. 2, 1899.....	\$104,400.00
Carried to surplus Dec. 31, 1899.....	24,330.07

Net income over & above expenses, fixed charges & interest, for year ended Dec. 31, 1899.....	\$128,730.07
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J. Joseph asked if the \$150,846.30, which was placed as surplus in the report, was without any incumbrance whatever. President Forget replied that it was, & that this sum was the property of the shareholders to do with as they saw fit.

The following directors were elected:—Hon. L. J. Forget, W. Wainwright, R. Forget, F. Henshaw, W. Hanson, H. Mackenzie, J. K. Osborne, H. M. Pellatt, C. O. Paradis, E. B. Garneau, J. Lewis.

At a special meeting immediately following, the shareholders approved of the measures proposed for increasing the capital stock for the purpose of meeting the expenditure for the completion of the str. Toronto, enlargement of the Tadousac Hotel, construction of Murray Bay Hotel & other purposes, by the issue of \$348,000 of new stock, an increase of 1 share for every 5 of the existing stock, to be offered to shareholders on record Feb. 28, at par, & that they be given to Mar. 15 to sub-

scribe their allotment, & that any balance not so subscribed be disposed of as the directors may decide. In explanation, President Forget said that the Co. owed the bank \$155,000 in connection with the improvements which are now being made, & he considered it better business if this interest was paid the stockholders in the way of dividends. He also said that the str. Toronto had been an immense success, & with another like her the receipts should increase an additional \$100,000. No definite decision had been arrived at as to whether another steamer would be ordered in the immediate future. The price of iron & steel had increased so tremendously that they had not thought it advisable to ask for tenders, but they were getting estimates.

Thos. Henry, heretofore District Passenger & Freight Agent of the Northern Pacific, with headquarters at Montreal, has been appointed General Traffic Manager of the R. & O.N. Co., succeeding the late G. A. Brown. Mr. Henry, who is a native of Montreal, entered the employ of the Ottawa River Navigation Co. about 21 years ago, & later went into the G.T. passenger department in the Montreal ticket office, in St. James Street. For the past 15 years he has been with the Northern Pacific, holding for 10 years the position he has recently resigned. His brother, W. H. Henry, is Canadian Passenger Agent of the Delaware & Hudson Ry.

The directors recently offered a trip pass from Montreal to Chicoutimi & return to the person suggesting the most acceptable name for the new hotel at Murray Bay. O. Paradis, of Sorel, suggested "Manoir Richelieu," which was accepted.

The Polson Iron Works, Toronto.

An illustration on page 51 shows the composite steel barge, Sir Leonard H. Tilley, which was seriously damaged by fire upon Lake Erie last fall, & purchased by Jas. Carruthers, of Toronto, from the insurance companies, since which she has been repaired at these works. The illustration shows her as she will appear when completed. A full

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Number of Farmers.. 27,000.

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CROP OF 1895.
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WHEAT.....	27.86 bushels
OATS.....	46.73 "
BARLEY.....	36.69 "
FLAX.....	16.08 "

CROP OF 1896.
An Unfavorable Season.

Average yield per acre.	
WHEAT.....	14.33 bushels
OATS.....	28.25 "
BARLEY.....	24.80 "
FLAX.....	12.30 "

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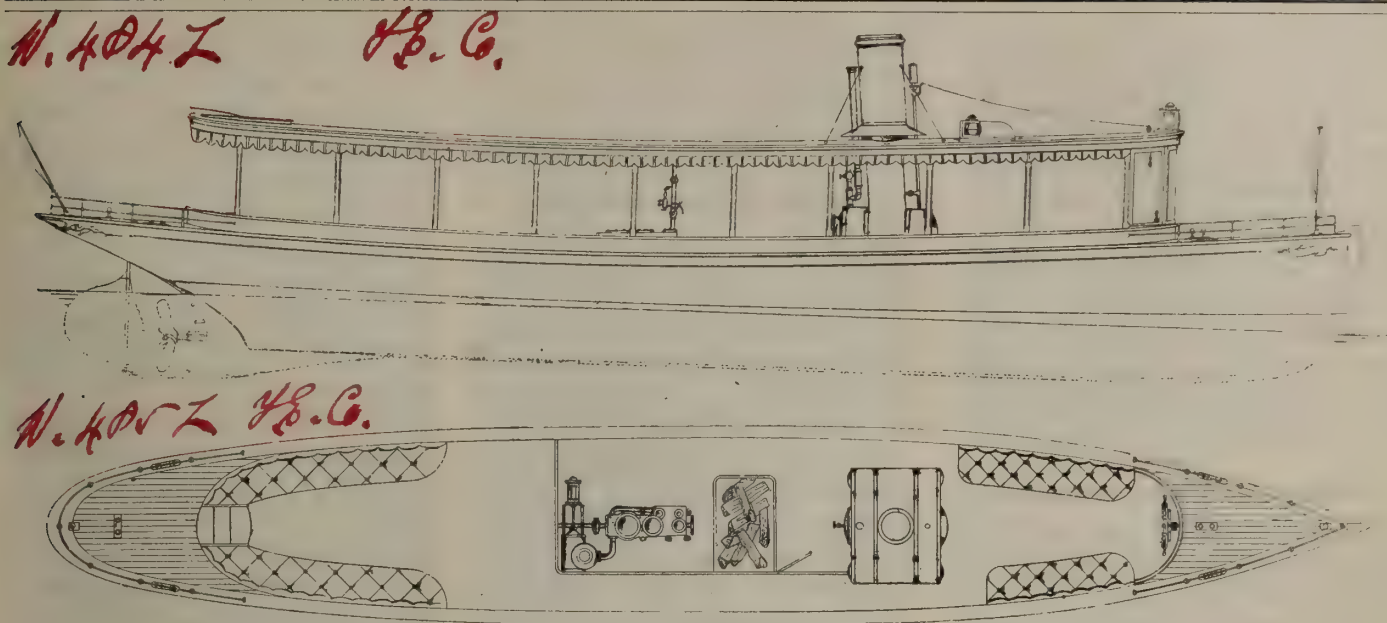
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WILLIAM STITT,

C.P.R. Offices,
WINNIPEG.



COMPOSITE STEEL LAUNCH BEING BUILT AT THE POLSON IRON WORKS, TORONTO.

description of the work done on her was given in our Jan. issue, pg. 25.

The other illustrations on this page show an open composite steel launch with canopy being built at these works for the Rev. Elmore Harris, of Toronto. She is 53 ft. long, fitted with triple expansion engines, $4\frac{3}{4}$ ft., $7\frac{1}{2}$ ft., 12 ft. by 7 ft., & Yarrow boiler, independent air pump & condenser, is framed with steel, planked with B.C. pine & highly finished & richly upholstered.

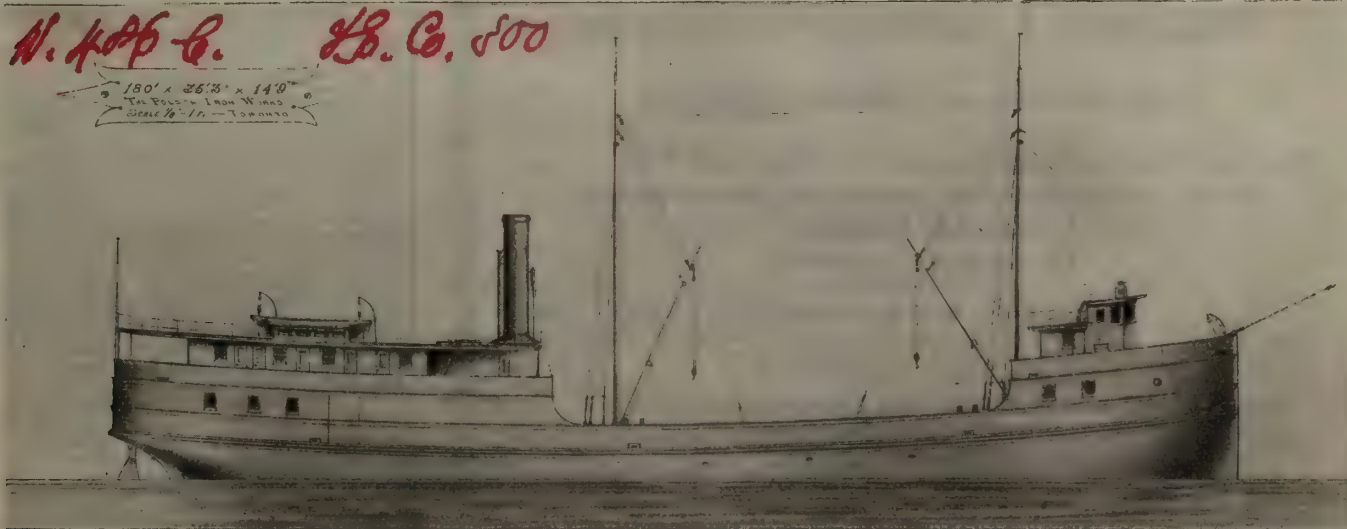
The St. Lawrence Route.

The Deputy Minister of Railways & Canals states that the 14 ft. waterway leading to Montreal from the West will undoubtedly be in operation this year. In a recent interview he said the work was practically completed. In answer to the statement that there is a 12 ft. shoal at low water at the foot of Wolfe Island, 75 yards in extent, he said that had nothing to do with the Department of Railways & Canals. Such a statement, however, does not dispose of the shoal, if it exists. Mr. Schrieber says there is 14 ft. navigation ready for the spring at the north channel, some distance above the western entrance to the

Galops canal, upon which dredges were recently working, & which is to replace the old channel which had only about 10 ft. of water. Mr. Schrieber says the Galops canal will be ready for 14 ft. navigation in the spring & that the shoals in the river just above Sparrow Hawk Point, which are said to have only 12 ft. of water, will be deepened. The Rapide Plat canal is all ready for navigation, except that some boulders will have to be picked up in the spring. Mr. Schrieber is very emphatic in stating that it will be possible for boats drawing 14 ft. of water to pass through the complete system to Montreal when navigation opens.

On the other hand, the transportation & grain trades directly interested in the route do not think that during the coming season there will be anything like a 14 ft. channel. The Montreal Witness, expressing their views, says: "On every section of the river, almost without exception, work will be needed next season to secure safe deep navigation. Below Prescott & at one point at least above Prescott, namely, at the foot of Wolfe Island, where at low water last year there was only 12 ft. of water, much heavy work will have to be done, & in Lake St. Francis the channel will have to be deepened at many places &

obstructions removed. Even in Lake St. Louis, between the Soulanges canal & the Lachine canal, it is extremely doubtful that it will be possible, or, if possible, safe, to attempt to use the larger vessels drawing 14 ft. of water. The owners & navigators of vessels on the river are of the opinion that even if 14 ft. of water is available in low water throughout the length of Lake St. Louis the channel is of such a character as to make it unsafe for such vessels. It appears that there has been a wide difference of opinion as to the necessary width of the channel. The river navigators hold that the channel, where there are such strong cross currents as exist in Lake St. Louis, should have been 600 ft. wide to make it perfectly easy & safe of navigation to large 14 ft. vessels in tows; to make it possible of navigation without considerable risk it should, at least, have been 400 ft. in width. By the new & cheap method of grain transportation, two of these large vessels are towed by a third which is supplied with steam power. Of course, where there are currents, the towing vessels are drawn to one side or other by the current. Every foot would be needed in a 400 ft. channel when these tows of vessels have to pass one another amidst cross currents. The government engineers were of the opinion



THE STEAMER SIR S. L. TILLEY, AS REBUILT AT THE POLSON IRON WORKS, TORONTO.

that 300 ft. was sufficient, & that is the width. Moreover, the work has been roughly done; the sides of the channels have, it is said, been left rough & ragged, & this contributes, it is said, an additional danger. It is confidently expected by navigators that if there is navigation of any consequence by 14 ft. vessels under these conditions there will be another series of accidents to be scored against the St. Lawrence route. It seems to be the opinion of navigators that the engineers are lacking in both knowledge & skill in regard to the work of improving our river navigation, & that they are not very greatly interested in it or strenuous in their efforts to secure real improvements. And they are not inclined to give much consideration to the views of those who have, at least, great knowledge & long experience as to navigation & its needs."

Maritime Provinces & Newfoundland.

G. Robertson, M.P.P., of St. John, N.B., has gone to England in the interests of the Imperial Dry Dock Co., which proposes to build a dry dock at St. John.

The Cape Island Steamship Co. is being formed with a capital of \$10,000, to do business on the south shore of Nova Scotia, with Clark's Harbor as the chief place of business.

The Richmond Steamship Co.'s steamer Vega, of the St. Peters-Mulgrave route, is in winter quarters at Sydney, N.S., for the usual overhauling. During last season the Vega steamed 16,000 miles, making 30 more trips than in 1898.

Residents of Southampton, Dumfries, Prince William & other up-river parishes propose building a boat that can run on the St. John river between Woodstock & Fredericton all summer. She will have a capacity of over 200 passengers & 40 tons of freight. A company is being formed with \$20,000 capital. The merchants of Fredericton will lend the company a helping hand, as it would be greatly to their interests to have continuous river service during the summer.

The new str. Glencoe, of the Newfoundland Ry. service, is now running weekly between St. John's, Nfld., & Halifax, N.S., connecting with the Plant Line service between Halifax & Boston. She is a sister ship of the str. Bruce, running between St. John's & Sydney.

She is 1200 tons gross & 800 net, with quadruple engines, & is lighted with electricity. There are berths for 42 persons, besides a ladies' cabin, which accommodates 8 more. The 2nd class quarters are fitted for 50 men & 25 women. She has a speed of 12½ knots.

Province of Quebec Shipping.

The contract for building a wharf at the I.C.R. station at Levis has been awarded to Contractor Lemieux of that place.

At the annual meeting of the Kingston & Montreal Forwarding Co. in Montreal, Feb. 1, the following were elected:—President, F. Ross; Vice-Pres., J. B. Carruthers; other directors, F. W. Ross, J. T. Ross, W. Stewart; Secretary, G. R. Moir.

The Montreal Harbor Commissioners are figuring on securing another dredge. The Engineer estimates that the cost will be, with the machinery as under construction on dredge no. 4, about \$46,000; with steel hull, about \$52,000, & with greater steam power, somewhat larger hull, & strengthened machinery, \$58,000.

At a recent meeting of the Chambre de Commerce in Montreal, A. J. Corriveau proposed a scheme for a new navigation route by way of the Richelieu River & Lake Champlain. His idea is to construct a canal from Longueuil to Ste. Therese Bay in the Chambly Canal, 18 miles, & to enlarge the Chambly Canal from there to St. John's, 4 miles. He thinks the U.S. should assist in view of the international character of the route, & is of the opinion that it would reduce the cost of coal 75c. a ton in Montreal.

At the annual meeting of the Ottawa River Navigation Co. in Montreal, Feb. 15, the following were elected: President, I. J. Gibb; Vice-President, R. H. W. Shepherd; Managing Director, R. W. Shepherd; other directors, Messrs. E. W. Simpson, R. Boulton & H. Wallis. The report referred to the prosperous condition of the Co. & the satisfactory season closed. The str. Victoria, built in Toronto, & placed on the Ottawa River service, fully met all requirements. Her first season's business was above expectations.

A number of directors of the Great Northern Ry., of Canada, called upon the Quebec Harbor commissioners recently & asked that body to co-operate with them in doing everything

possible to increase the shipping facilities of Quebec. They requested that the harbor be put in the finest possible condition & that their own enterprises be systematically aided. In reply the commissioners, through their chairman, assured the deputation that they were prepared to go to any length that was advisable in the matter, & congratulated them on their enterprise & public spirit.

In introducing a bill to amend the Pilotage Act in the House of Commons recently, the Minister of Marine explained that it referred only to the pilots on the St. Lawrence between Montreal & Quebec, & was largely the result of the findings of the commission appointed after the strike of the pilots a couple of years ago. A number of points of difference were covered in by-laws which he had submitted to the Harbor Commissioners of Montreal, the pilotage authorities. These proposed by-laws provide that in any meeting held by the Commissioners to consider such matters as the buoying of the river, a representative of the pilots should be present to advise them; that the pilots should be subjected once in three years to a color-blindness test, & that the number of pilots should not be increased beyond 50. The present bill established a tribunal, with complete jurisdiction, to inquire into charges against pilots, taking that power out of the hands of the Harbor Commissioners. This tribunal consists of three persons, two of whom should possess nautical or pilotage experience, to be appointed by the Minister of Marine, one on his own nomination, who should be Chairman, one on the nomination of the Harbor Commissioners, & the third on the nomination of the pilots themselves.

Harbor Engineer Kennedy, of Montreal, has made the following report on the wharves, etc., which are to be built by the Dominion Department of Public Works below St. Mary's current. The pier & shore wharf are to be built forthwith with the \$500,000 voted by Parliament last session. The pier is to be placed midway between the existing piers at Hochelaga & parallel to them. It will be about 272 ft. wide x 1,000 long on the upstream side, & 840 on the downstream side, & will be surmounted by a temporary ice-resisting wall running lengthwise of the pier, & so placed as to leave a clear space of about 80 ft. wide between the wall & the upstream side of the pier, & another of 160 ft. wide between the wall & the downstream side. The space of 80

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ft. on the upstream side is at first to be a low level wharf 13 ft. high above low water, & is to have upon it a removable shed 35 x 750 ft., & 2 railway tracks, but the plan shows no roadway. The downstream side will be a high level wharf 24 ft. high above low water, & will have upon it a permanent freight shed 80 x 600 ft., two railway tracks, & a roadway 50 ft. wide. The outer end of the pier will also be low level & will have a short ice-resisting cross wall to protect the end of the permanent shed. After other contemplated piers are built below the pier to be now built, a permanent longitudinal ice wall will be substituted for the temporary one, & it will be placed along the upstream edge of the pier, instead of 80 ft. distant. All freight shipped or landed will have to be taken over the permanent wall, but it is proposed that this side of the pier be assigned to coal traffic, as coal can be easily taken over the wall by modern appliances.

The basins between the sides of the new pier & the existing piers east & west of it will be about 400 ft. wide. The head of the basin between the new pier & the existing pier above, or west of it, will be formed by a low level shore wharf, having upon it a system of earth embankments for carrying the railway tracks & roadway leading to the pier, & for protecting them from ice shoves. The other basin, or that between the new pier & the existing pier east of it, will also have a shore wharf, but of high level & affording a site for a grain elevator of 1,000,000 bush. capacity. The elevator is to be made to resist any ice shove which may reach the inner end of the basin, by having its walls built of stone or concrete to above ice & flood level & fitted with water-tight gates.

The piers & shore wharves are intended to be built with cribwork walls up to low water level, & with substantial concrete walls from that to the top of the wharf; all the space within the outside walls of both pier & shore wharf is to be fitted up with earth & stone dredgings. The basins between the piers & the approaches from the ship channel are to be dredged out to 30 ft. depth at low water. The extent of wharf front which will be afforded by the new pier & shore wharves will be about 3,070 lineal ft.

Ontario & the Great Lakes.

The str. *Queen City* was put up for sale by auction in Toronto, Jan. 11, but as only \$2,000 were offered she was withdrawn.

The Calvin Co., Ltd., Garden Island, is building a schooner-rigged tow barge 200 ft. long, 40 ft. beam & 16 ft. deep.

Capt. A. W. Gillman, Superintendent of the Goderich Transportation Co., & one of the most widely-known men on the lakes, died very suddenly of apoplexy at Milwaukee Jan. 31.

The Minister of Marine states that a fog bell or other signal will be established at the light house at the eastern entrance of Toronto harbor, at the opening of navigation next spring.

The Rainy River Navigation Co., with headquarters at Rat Portage, has elected the following officers for the current year:—President & Manager, G. A. Graham; Vice-President, W. Ross; Sec.-Treas., C. C. Frisbee.

The Montreal Transportation Co. has presented Capt. J. Murray, of Kingston, with a \$250 gold watch & chain, for saving a tow of grain barges after the tug he commanded caught fire. He beached the tug at Alexandria Bay.

The U.S. Treasury Dept. has, under date of Jan. 27, issued amended rules & regulations governing the movement & anchorage of vessels & rafts in St. Mary's River, from Point Iroquois on Lake Superior to Point Detour on Lake Huron.

The Dry Dock & Steel Shipbuilding Co., of Collingwood, is said to have appointed as Manager a person who has had many years' experience in large shipyards in the U.S., & has for some years been employed in Capt. McDougall's shipyard at West Superior, Wis. His name is not given.

The Minister of Marine has promised a depuration from Rat Portage that light houses will be erected in the Lake of the Woods on Burton Island & Big Island, & it is probable a third one will be placed at the narrows between Birch & Oak Islands, & a bell buoy on the sunken rock at the south end of the lake.

Owen Sound will, it is stated, be the headquarters of a steamship line, which will compete with the Northern Navigation Co. for the Sault Ste. Marie & north shore business & Mackinaw excursion traffic. The str. *City of Windsor*, which has been on the route during the last two seasons, will be reinforced by two or three large steamers suitable for Mackinaw excursion business.

According to the Fort William Board of Trade report, 942 vessels entered that harbor during 1899, with a registered tonnage of 1,003,422 tons; 100,000 tons of merchandise, 235,000 tons of coal & 30,500 tons of iron were received, all showing increases over 1898. The shipments from Fort William harbor included 63,000 tons of flour & 14,715,330 bush. of wheat, 4,014,751 of which were carried in U.S. vessels.

Maitland, Rixon & Co., of Owen Sound, owners of the tug *Thos. Maitland*, have decided to build a barge to be used as a consort for her. The barge will be 130 ft. long, with 30 ft. beam. She will have a spoon bow, & her carrying capacity will be 10,000 ties. She will have a steel winch for loading and unloading. There will be no crew's quarters, as the Maitland's accommodation is ample. The barge will be built at Maitland, Rixon & Co.'s pier.

It is reported in Cleveland that an arrangement has been completed between the Lake Erie Transportation Co., which operates boats between Cleveland, Rondeau & Port Stanley, & the C.P.R., under which one & possibly two new steamers may be put on the line next summer, to make both day & night trips to Rondeau & Port Stanley. Connection with the C.P.R. would be made at London by way of the Lake Erie & Detroit River Ry. for the east & west.

At the annual meeting of the Northern Navigation Co. in Collingwood, Jan. 30, the old officers were re-elected as follows:—President, J. Scott; Vice-President, J. J. Long; Secretary, T. Long; Treasurer, J. E. Stephens; Managing Committee, J. J. Long, C. E. Stephens, C. Cameron, M. Burton. The directors have appointed W. Askin, heretofore General Agent of the Northwest Transportation Co. at Toronto, as Manager, to succeed A. Miscampbell. G. D. Ellis, of Barrie, has been appointed Travelling Agent.

The Ontario Department of Fisheries is said to be contemplating increasing the license payable by each fishing tug in use in provincial waters from \$25 to \$50. There are about 80 tugs that would be affected by the increase, & most of these are in operation in Georgian Bay, Lake Huron & Lake Superior. Originally the Dominion Department of Fisheries exacted a fee of \$50 in respect of fishing tugs, but the amount was reduced to \$25. Now that the Province has jurisdiction in such matters it is said it contemplates reverting to the higher figure.

In another item reference is made to the large lake freighters being built for the American S.S. Co. The record for the greatest ore cargo is now held by the Minnesota Steamship Co.'s barge *Manila*, which during last season took a cargo of 8,376 net tons from Two Harbors, Mich., to South Chicago,

Ill. The same Co.'s str. *Malletoa* carried between the same ports a cargo of 8,215 net tons, & the Rockefeller tow barge *John Smeaton* has a record of 8,339 net tons. It is expected that the new steamers will surpass these records during 1900.

The Canada Atlantic Transit Co.'s fleet for the coming season will be made up of the following vessels: Arthur Orr, 4,800 tons; G. N. Orr, 4,200 tons; W. H. Gratwick, 4,200 tons; Kearsarge, 4,500 tons; new boat now building, not yet named, 3,300 tons. Total gross tonnage of new fleet, 21,000 tons, as against 17,000 tons for 1899, or an excess of 4,000 tons a trip, or about 100,000 tons east-bound for the season. The steamer now being built in Toronto will be 257 ft. over all; beam moulded 43 ft.; depth moulded 25½ ft. Estimated capacity, 3,000 gross tons; engines, triple, 17.28, 46x32; 1 Scotch boiler, estimated horse power, 750.

Lieut.-Col. Lydecker, of the Corps of Engineers, U.S.A., has made a report relative to the vessel blockade during the past season in the St. Mary's River & the St. Clair Flats Canal. Navigation was twice blocked in the St. Mary's River; the total period during which general navigation was suspended being 8½ days. The first blockade was that of the Sailors' Encampment channel, Sept. 5 to 10, & in the second the upper entrance to Hay Lake channel was obstructed from Nov. 28 to Dec. 1. In the Sailors' Encampment blockade 332 vessels were delayed, & in the Hay Lake channel blockade 167 were delayed. The money loss to vessel interests by reason of these delays is estimated at \$227,373 for the Sailors' Encampment & \$142,745 for the Hay Lake channel. The St. Clair Flats Canal was blocked by a tow barge for about 1½ days, Dec. 4 to 6, the resultant money loss being about \$10,000. Col. Lydecker points out that the total money loss to vessel interests is not limited to the items of delay, but includes other incidental expenses, such as the cost of removing or repairing the wrecked or stranded vessels, & damages sustained to other vessels in endeavoring to pass outside the blockaded vessels. He therefore says the total loss to vessel interests owing to these three blockades may be conservatively estimated at \$675,000.

It is likely that strong attempts will be made at the present Congress of the U.S. to have several additions made to the force of revenue steamers for duty on the Great Lakes. Under the terms of the treaty with Great Britain but a single warship can be maintained on the lakes by the U.S., but the Marine Record believes that the construction of revenue vessels will not be held to be a contravention of the treaty. Plans for the new revenue cutter authorized last year for service on the lakes have been accepted; she will be of the finest type of craft on fresh water, if not afloat, & will cost \$165,000. The length over all is to be 178 ft.; moulded beam, 30 ft.; depth, 15 ft. amidships. The keel is of the flat type, made of plates 14 lbs. to the sq. ft., double thickness and riveted together. Above the main deck the steel will average 10 lbs. to the sq. ft., & the double plates & extra heavy steel construction of frame will make the cutter a formidable little craft if necessary for any active service. The main engine will be vertical, triple expansion, direct acting, with cylinders 17, 27 & 43 in. in diam., and a 24 in. stroke. There will be 2 single-ended boilers capable of carrying a working pressure of 160 lbs. All of the mechanism is to be of the latest design, & so arranged as to give the maximum power with the minimum space utilization. The pilot & chart houses, located directly abaft the foremast, are to be made of steel, & the steering gear will be worked by steam power from both the pilot house & the bridge, with hand gear & other connections in case of accident.

The first 500 ft. freighter for service on the great lakes was launched at Lorain, Ohio, in Jan. She is the first of 4 big carriers building for the American Steamship Co., which will each carry about 9,000 net tons per trip. She is a steel bulk freight steamer & is within a few inches of 500 ft. over all. The length on keel is 478 ft., beam moulded 52 ft. & depth 30 ft. Steel is used for masts, deck houses, & in fact in almost every part of the vessel, wood being dispensed with whenever possible. She has 13 water-tight compartments & has a capacity for 3,500 tons of water ballast. There are five longitudinal girders on each side of the center line of the hull. The between-deck beams are spaced 8 ft. apart throughout the length of the cargo holds, & consist of 15-in. heavy channels attached to 15-in. channel bent frames, similarly spaced, & these in connection with spar deck beams & channel floors make a succession of continuous heavy members 8 ft. apart throughout the length of the ship. These in turn are strongly connected & braced longitudinally by stringers & girders, making the ship exceptionally strong. There are 15 cargo hatches, 30 x 8 ft. in the clear, spaced 24 ft. centers. The cargo holds are divided into 6 compartments by water-tight bulkheads & steel doors. The vessel will be fitted with a quadruple expansion engine, with cylinders of 16½, 25½, 38½ & 60 ins. in diameter & 40 ins. stroke. These engines will drive a wheel 14 ft. in diameter and 15½ ft. pitch. Steam will be supplied from water-tube boilers having 140 sq. ft. of grate surface, 6,800 sq. ft. of heating surface & working at 250 pounds pressure. The coal bunkers will have a capacity of 300 tons. The auxiliaries include steam steering gear, steam capstan windlass, winding machines for handling wire mooring lines & a complete electric light plant, operated by compound engines. She will have three steel pole masts, with pilot house & texas adjoining the forecabin, & a raised quarterdeck over machinery & boiler space. The chart house & pilot house, as well as captain's quarters, one stateroom & rooms for mates, wheelmen, watchmen, firemen, deckhands, etc., will all be in the upper forward part of the vessel. Two deckhouses amidships will be devoted entirely to passengers. Quarters for engineers, oilers, steward as well as engineers' storerooms, kitchen, crew's mess rooms, dining room, etc., will be situated below the quarterdeck aft.—Marine Review.

British Columbia Shipping.

The C.P.R. Co. has decided to build a steamboat for service on Okanagan Lake, between Okanagan Landing & Penticton, to take the place of the str. Aberdeen, which has been on the run for some years. The dimensions of the new boat will be, length 160 ft., beam 26 ft., depth 7 ft. Her motive power will be taken from one of the steamers which was built in 1898 for the Stikeen River service.

The Canadian government has adopted for use at Vancouver, B.C., an improvement in fog-signalling & light-house apparatus, which is a combination of the principle of the electrically vibrated phonographic diaphragm, with two large megaphones, from which signals are sounded alternately. In connection with the siren signals a light flashes every forty seconds, the siren signals being sounded for the remaining twenty seconds of the minute. The mechanism is regulated by clockwork.

The C.P.R. Co. has decided to build another tug boat to be used on Kootenay Lake for towing car barges between Kootenay Landing & Nelson. She will be built at Nelson out of coast lumber. Following are the general dimensions:—Length 102 ft., breadth of beam 20 ft., depth 9½ ft. The boiler will be 11 ft. in diameter by 12 ft. long, with 2 corrugated furnaces. The engines will be compound jet condensing, cylinders 14 & 30 ins. x 20 ins. stroke, both boiler & engine will be built by the Polson Iron Works, Toronto.

The Victoria Board of Trade has had a conference with representatives of Dodwell & Co., of Tacoma, Wash., in reference to the steamship service between Victoria & Puget Sound, which was said to have been very unsatisfactory since the loss of the str. Kingston. The Board complained of inconvenience in securing berths, the total unfitness of the str. Utopia, & the fear of unseaworthiness of the str. Victorian. Mr. Dodwell stated his Co. had spent three months looking for a steamer to replace the Kingston, & purchased the Victorian, which was more seaworthy than the Kingston ever was, & had spent \$60,000 in improvements on her since her purchase. He said the steamer was losing \$4,000 a month, & that the Co. was also losing on the 75c. meals which were complained of. He promised some concessions in regard to facilities for securing berths, & in giving information as to the departure of the steamer from Victoria.

Vancouver people are interested in the results of an interview which took place recently between C. E. Tisdall, M.P.P. for that city, & J. Dunsmuir. Mr. Tisdall drew Mr. Dunsmuir's attention to the very poor steamboat connection between Vancouver & Union wharf. The only way to ship from Vancouver to Union is to send first from Vancouver to Nanaimo, & then from Nanaimo to Union wharf. The Union wharf being a private one, the Esquimalt & Nanaimo Ry. will not allow outside steamers to land goods there. That means double wharfage & poor service for Vancouver shippers. Mr. Tisdall asked Mr. Dunsmuir whether some arrangement could not be made in future whereby Vancouver steamers might be allowed to call at Union wharf. Mr. Dunsmuir assured him that on or about April 1 the E. & N. Ry. would put on a direct service from Vancouver to Union wharf. The str. City of Nanaimo will make a trip certainly once, & possibly twice a week, & will run between Vancouver & Union wharf & Nanaimo & Union wharf.

It looks as though there is to be spirited competition for the Japan-China trade. President Hill, of the Great Northern Ry., is credited as saying in a recent interview, "I propose to build as many vessels as the trade with the Orient will justify, & that will be a great many. The natural market for the Pacific coast is China, Japan & the Philippines. The docks at Seattle are large enough to accommodate all of the shipping for some time, but eventually the conditions will warrant more extensive harbor accommodations. It is too far from the Pacific Coast to the Eastern States to ship many of the northwestern products to the east. A market for grain in the Orient will give the farmers a price higher than they can get in the east. The products of the iron & coal mines & lumber regions in the northwest can be sold to better advantage in the markets of the Orient than they can bring in the east. It is not like forcing something upon the market that people don't want. They want everything we can take to them & we want their products. We shall have 25 steamships in the service within the next five years. The vessels will be of the largest size, with enormous carrying capacity & comparatively slow speed. Speed is not so much of an object as to be able to lay the goods on the other side of the Pacific so that they may compete with native products."

Yukon & Northern Navigation Flatters.

Capt. E. J. Smyth, of Dawson, Yukon, is said to have arranged with a Victoria, B.C., ship building firm to build a 1st class stern wheel steamer 110 ft. long, with 30 ft. beam, for service on the Klondike River between Dawson & the heart of the great placers. It is proposed to build the steamer in Victoria, take it north in sections, & put it together where the Klondike discharges into the Yukon.

It is said the stern-wheel steamers Dawson, McConnell & Ogilvie, built by the C.P.R. during the first rush to the Yukon, & some of which the Co. operated for part of a season on the Stikine river, have been purchased by a syndicate in which Victorian B.C. people are interested, & will be taken around to the Yukon river, to run between Dawson & the terminus of the White Pass & Yukon Ry., which next summer will be below White Horse rapids. The Dawson has been lying in False Creek, Vancouver, since the failure of the Stikine river route, & the McConnell & Ogilvie are at Wrangle.

The following steamship sailings are announced:—Canadian Pacific Navigation Co.'s str. Tees leaving Victoria Feb. 21, Mar. 7 & 21, & Vancouver on the following days, for Wrangle, Skagway & Dyea. The same Co.'s str. Danube leaving Victoria Feb. 15, Mar. 1, 14 & 28, & Vancouver on the following days, for Wrangle, Skagway & Dyea. The Pacific Coast Steamship Co.'s str. Cottage City leaving Victoria Feb. 24, Mar. 11 & 26 for Wrangle, Juneau, Skagway, Dyea, Killisnoo &

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JAMES COOPER, 299 ST. JAMES ST., MONTREAL.

Sitka. The Alaska Steamship Co.'s str. Rosalie for Wrangel, Juneau, Skagway & Dyea will call at Vancouver & Victoria, if sufficient business offers, on Feb. 22, Mar. 8 & 22, April 5 & 19.

E. J. Coyle, Assistant General Passenger Agent of the C.P.R. at Vancouver, when in Montreal recently, is reported to have said that the efforts made by a strong syndicate, capitalized by English investment, to establish a fast passenger & freight line of steamships for the Yukon trade, plying between Vancouver & Skagway, are attracting much attention in B.C. The steamship service from Vancouver, with Yukon connections, have been altogether inadequate in the past. The syndicate has, it is said, accomplished something definite in its purpose, & the project will become an actuality very shortly. The syndicate will place on the route two Clyde built steamers, on which an option has been secured, early in May, in time to catch the early traffic for the gold fields. Montreal capital is also behind the venture.

Red River Navigation.—The Dominion Government having decided to improve the navigation of the Red River, at St. Andrews rapids, between Winnipeg & Selkirk, recently invited tenders for the construction of a concrete dam 800 ft. long across the river, a set of concrete locks 215 ft. in length, & dredging the river for some 400 ft. The lift of the locks will be about 18 ft. An appropriation of \$150,000 is already available. The total estimated cost of the work is between \$700,000 & \$800,000. The St. Andrews rapids are the only serious obstruction to navigation between the International Boundary & Lake Winnipeg.

ELECTRIC RAILWAYS.

Maritime Provinces & Newfoundland.

Halifax Electric Tramway.—At the annual meeting, Feb. 12, the report was presented as follows, showing a net profit of \$61,798.67, as compared with \$54,748.54 for the previous year. From the year's profits there have been paid 4 quarterly dividends of 1¼% each, amounting in all to \$40,000, leaving a surplus of \$21,798.67. The roadbed, rolling stock, power station, equipment & other property have been maintained in a high state of efficiency, & the cost thereof, as in previous years, has been charged to operating expenses. The business continues to increase satisfactorily, & the percentage of operating expenses is lower than in any previous year, showing a decrease of 3.91% as compared with last year. The cost of extending the lighting lines, to open up new districts, has been charged direct to operating expenses, with few exceptions. Although the track mileage has not been increased during the year, the car mileage has increased 20,334 car miles, & 2,616,231 passengers have been carried, an increase of 196,963 passengers over the previous year, due to a great extent to the reduction of fares adopted at the commencement of the year. The weather, on which the earnings so largely depend, was not on the whole favorable. The popularity of the lighting system shows a steady increase, the equivalent of 3,042-16 candle-power lamps having been installed during the year, making a total instalment of 17,267 incandescent lamps throughout the city. The boiler house & coal sheds have been enlarged, & one 250 h.p. boiler installed. Mechanical stokers have been placed under one boiler, & the power station equipment has been increased by a constant-current series alternating arc lamp transformer of 100 lamps capacity. Line transformers of 50,000 watts capacity, & 110 meters have been installed, all of which has entailed an expenditure of \$16,277.66, charged to construction account.

STATISTICAL STATEMENT.

	1899	1898	1897
Gross receipts—railway, light & power.....	\$203,935.86	\$197,830.46	\$193,379.68
Increase 1899 over 1898 3.08%.....	6,105.40		
Operating expenses .. 1898, 0.83%.....	112,137.19	113,081.92	112,570.91
Decrease 1899 below 1898, 0.83%.....	944.73		
Operating expenses — Per ct. of total earnings.....	55.15	59.06	57.11
Net earnings.....	91,798.67	84,748.54	80,808.77
Increase 1899 over 1898, 8.32%.....	7,050.13		
Passengers carried....	2,616,231	24,192.68	23,349.00
Increase 1899 over 1898, 8.13%.....	196,963		
Average receipts per passenger (reduced rates in 1899).....	4.59	4.93	4.99
Car mileage.....	613,942	593,608	575,017
Increase 1899 over 1898, 3.32%.....	20,332		

FINANCIAL STATEMENT FOR YEAR ENDING DECEMBER 31ST, 1899.

ASSETS.

Property.....	\$1,385,145.87
Construction account.....	67,025.55
Accounts receivable.....	18,901.03
Supplies on hand.....	6,712.35
Suspense accounts.....	6,473.48
Deposit with City.....	500.00
Cash on hand.....	41,406.93
	\$1,526,225.21

LIABILITIES.

Capital stock.....	\$ 800,000.00
Five per cent. bonds.....	600,000.00
Accounts payable.....	27,725.34
Securities for lighting accounts.....	71.98
Tickets outstanding.....	881.33
Bond interest.....	15,000.00
Quarterly dividend due Jan. 1, 1900.....	10,000.00
Surplus Dec. 31, 1899.....	72,546.56
	\$1,526,225.21

INCOME ACCOUNT.

Passenger receipts.....	\$119,963.92
Light and power earnings.....	82,627.48
Sundry railway earnings.....	733.32
Sundry receipts.....	611.14
	\$203,935.86
Operating expenses.....	\$112,137.19
Coupons.....	30,000.00
Four dividends.....	40,000.00
Surplus.....	21,798.67
	\$203,935.86

The railway receipts for Jan., lighting receipts not included, were \$11,474.26, against \$8,613.11 in Jan., 1899.

The Moncton, N.B., Street Ry. not having been operated for some time, the town council is considering the question of taking steps to compel the Co. to take up the rails and place the streets in a proper condition.

Quebec Electric Railways.

Montreal St. Ry.—The gross earnings are:

	1899-1900.	1898-1899.	Increase.
Oct.....	\$145,877.20	\$133,619.93	\$12,257.57
Nov.....	133,489.12	125,125.09	8,364.03
Dec.....	137,681.19	127,768.38	9,912.81
Jan.....	136,086.33	125,276.04	10,810.29
	\$553,133.84	\$511,769.14	\$41,344.70

The latest story to gain currency respecting the very good understanding which is known to exist between the Royal Electric Co. the Chambly Water & Power Co. & the Montreal St. Ry. Co., is that the latter corporation will buy a good sized lump of the Water & Power Co.'s stock. It is also said that the Royal Electric will purchase a large interest in the same corporation. It is well known that the Montreal St. Ry. will take a good share—if not all—its power from the works at Chambly, & it is generally believed that between the railway & the Royal Electric, the two consumers of electricity will be able to use up about all the power that the Chambly Co. can furnish. The officials of the different companies, while not denying that there are plans on foot, refuse to say anything.

The dispute between the Co. & the City Council in regard to the removal of snow from the streets has been compromised. The Co. offered to pay half the cost of removal of snow from the streets where there are car tracks, while the city held that the Co. should pay two-thirds of the cost; & that this had been the agreement in the past. The old contract having expired, however, the Co. wanted a new agreement entered on the half-cost basis. The arrangement arrived at with the Co. to-day was that it should for this winter deposit two-thirds of the cost of the probable amount the snow removal would cost, & that both parties should go to law to see whether or not the City had the right, according to its agreement with the Co., to charge more than half cost for the removal of the snow. In the event of the city winning in the courts the Co. will this winter have to pay on the two-thirds basis, as guaranteed, but in case of the City losing, the difference between two-thirds as deposited, & half the cost will have to be returned to the Co. The arrangement as it now stands is that the Co. puts up during the legal fight \$45,000 guarantee for snow removal this year, while the City puts up a guarantee of \$30,000. (Dec '99. pg. 371.)

Superintendent D. M. McDonald, of the M. S. Ry. has invented a device to prevent the too sudden starting of electric cars. On the top of the controller is a series of 8 stops placed at stated intervals & in a circle. Attached to the handle is a spring arrangement which connects with these stops. The handle runs around freely until the first stop is encountered. Then in order to put on more power a pressure on the handle is necessary. A pressure on the handle top allows the power to be applied to the next stop, & so on until the entire circle has been negotiated. In order to go from a stand-still to full power ahead a lapse of from 8 to 10 seconds is necessary. By the old method one sweep of the handle would do it all, & there was the attendant jump which was so likely to cause a passenger to fall prostrate. Of course there is nothing to interfere with the rapid turning off of the power: this can be done with one sweep of the handle, as formerly. Mr. McDonald explained that no matter how carefully a motor man was trained, there were times when he would send on the power more quickly than he should. Perhaps it might be his anxiety to make up lost time and get up with his schedule or a dozen other complications; the result was the same. Another thing in favour of the invention is the proper application of electrical power. In order to get the full benefit of the power applied, & this is true not only in street cars, but in all machinery operated by electricity, the application of the power must be steady and gradual. Another improvement is an automatic lock by which it will be no longer necessary for the motorman to take the handle with him on leaving the car in order that the accidental application of the power can be avoided.

Mount Royal Park Incline Ry., Montreal.—This Co. has appointed a committee to report on the desirability of converting the power plant from steam to electricity. Last year 325,000 passengers were carried.

The Quebec Ry. Light & Power Co. gives notice of application to the Dominion Parliament for authority to pledge or otherwise dispose of its unsubscribed stock, or to issue it as paid up stock, & generally to deal with such stock as the directors, with the authority of the shareholders, may deem expedient.

Ontario Electric Railways.

Belleville St. Ry.—Notice is given that under authority contained in securities held by the vendor, there will be offered for sale by auction at Belleville, on March 1, the electric railway now being operated from Belleville

station to the Bay of Quinte, & other property of the Co., including power house, machine shops, power, cars, rails, wires, motors, & equipment of every kind, & the franchise enjoyed by the Co. The vendor is understood to be the Bank of Montreal, which holds a mortgage on the property.

The Berlin & Waterloo St. Ry. is installing 16 storage batteries to supplement the power furnished by the generators & to overcome the difficulties frequently experienced by heavy loads.

Brockville to Ottawa.—The Brockville Board of Trade has been considering the question of a proposed electric railway between that city & Ottawa.

Galt, Preston, & Hespeler St. Ry.—The report for 1899, presented at the annual meeting, Feb. 1, showed receipts for the year of \$24,166.96, & expenditures of \$24,175.78. The principal receipts were—Passenger earnings, \$13,275.32; freight earnings, \$6,041.92; stockholders on account of 6th call, \$620; supplies sold, \$1,366.76. The principal expenditures were—Repairs, \$278.79; insurance, \$1,025.25; interest, \$4,789.55; supplies, \$3,140.83; coal, \$3,210.89; wages, \$9,308.65. The assets & liabilities are as follows:—

ASSETS.	
Plant	\$121,725 19
Office furniture	111 35
Stationery, etc.	250 00
Supplies on hand	7,023 55
Unexpired insurance	409 27
Accounts debtors	428 61
Coal oil and waste	322 72
C.P.R.	66 18
Outstanding freight	5 75
Cash	445 01
	\$130,787 63

LIABILITIES.	
Shareholders	\$ 28,532 50
Bonds	100,000 00
Outstanding accounts	949 76
Interest accruing due	956 62
Balance	348 75
	\$130,787 63

The no. of passengers carried during 1899 was 232,361, & of freight 15,515 tons. General Superintendent Leonard, of the C.P.R., who is one of the directors, stated that a company had offered to buy the C.P.R.'s share in the line at a certain figure, & he had consented to sell, provided the company would agree to take over all the stock of any other shareholder at the same price. The meeting adjourned for a month to consider the proposal. A resolution was passed authorizing the directors to enter into an agreement with the C.P.R., that for all time to come passengers, freight, & express destined to points reached by C.P.R. lines be transferred from the G.P.,

& H. St. Ry. at Galt to the C.P.R. It is said that the prospective purchasers are the Cataract Power Co., of Hamilton, who recently consolidated several of the electric lines centering in that city.

The Guelph St. Ry. Co. carried 25,000 more passengers in 1899 than in 1898.

The Hamilton Consolidated Lines.—The Hamilton Electric Light & Cataract Power Co. now owns & operates the Cataract Power Co., Hamilton Electric Light & Power Co., Hamilton Street Ry., Electrical Power & Manufacturing Co., Hamilton Radial Electric Ry., & Hamilton & Dundas St. Ry. While the various companies are consolidated as far as management is concerned, they are run under their own names, owing to the various charters & franchises they have differing considerably. Hon. J. M. Gibson is President of the Cataract Power Co. & Hamilton St. Ry. Co. J. Dickenson is President of the Hamilton & Dundas St. Ry. & of the Hamilton Electric Light & Power Co. J. Patterson is President of the Hamilton Radial Electric Ry., & Secretary for the other Companies. J. Moodie is Treasurer of all the Companies. C. K. Green is Traction Manager of the three electric railways, & J. B. Griffith is Purchasing Agent. M. B. Thomas, who was Manager of the Hamilton & Dundas St. Ry., has been appointed to a position in connection with the electric railway system above mentioned. The offices of the 3 electric railways have been consolidated at the Hamilton Radial Electric Ry.'s former headquarters, corner James & Gore streets.

It is said that the Hamilton Radial Electric Ry. is likely to be extended to Oakville at an early date.

J. Patterson says that the project of building an electric railway from Hamilton to Galt & Guelph may be dropped, owing to the apparent disinclination of the city of Hamilton to encourage it.

The Hamilton Radial Electric Ry. Co. gives notice of application to the Ontario Legislature for an act to extend the time for completing the Co.'s lines, & for other purposes.

Hamilton, Grimsby & Beamsville Electric Ry.—The report presented at the annual meeting Jan. 22 was very satisfactory. The receipts for 1899 were \$44,670.75, the principal items of earnings being—Passengers, \$34,035.36; freight, \$6,898.83; express, \$2,160.43; milk, \$986.42; mails, \$438. The disbursements were \$27,729.87, leaving a balance of \$16,940.88, out of which were paid 4 quarterly dividends of 1¼%, amounting to \$5,665 & \$6,402.24 for interest, leaving a net balance of \$4,873.64, which added to \$2,950.11 brought forward from 1898, makes \$7,823.75 to the Co.'s credit. The total assets are

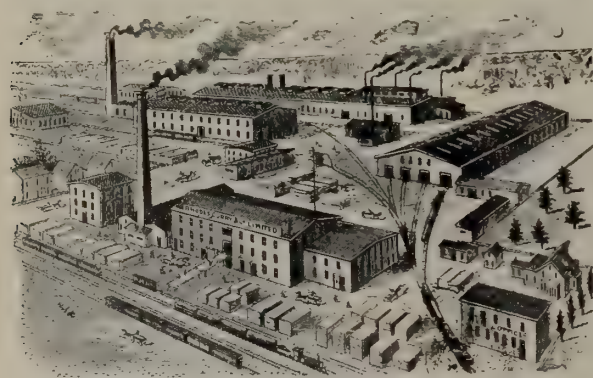
\$277,474.38, of which \$270,707.74 represents construction. The liabilities to the public, including \$85,000 of bonds are \$128,702.21 & to the shareholders \$113,300, leaving a credit to profit & loss of \$35,472.17, for which amount paid-up stock has been issued to the shareholders pro rata, being one-third of the total amount of capital stock. The following were elected: President, C. J. Myles; Vice-President, W. J. Harris; Treasurer, R. S. Martin; other directors, L. Bauer, A. H. Myles, R. Ramsay, R. S. Morris; Manager & Secretary, A. J. Nelles.

The Co. is having some extra passenger cars built.

The Ingersoll Radial Electric Ry. Co. gives notice of application to the Ontario Legislature to revive & amend its act of incorporation passed in 1897, by extending the time for the construction of the work, & by empowering the Co. to construct & operate a line from Ingersoll to Woodstock, & from Mount Elgin to Verschoyle, also to increase the capital stock to \$700,000, \$100,000 to be applied towards the construction of the line from Ingersoll to Woodstock, & \$50,000 from Mount Elgin to Verschoyle.

London St. Ry.—At the adjourned annual meeting Jan. 25 the report showed a falling off in gross revenue as compared with previous year of \$53,864.19, due to the strike. The working expenses exceeded the receipts by \$6,928.54. The report says: "Your directors beg to submit statement of the past year's business, showing gross revenue of \$59,947.58, as against \$113,811.75 for the previous year. Operating expenses were \$66,872.10, against \$65,665.23, an increase of 1.8%. By reference to the quarterly earnings statement attached you will note that the revenue increased during the first quarter of the year (when no strike was on) 10.2%." After giving a sketch of what happened during the strike, the report states that very little patronage was received till the rainy season set in late in the fall, & goes on to say: "Your directors very much regret & deplore this unfortunate strike, but feel that as the franchise rights of the Co. were attacked there was no other course open to pursue but to fight it out. The earnings of the Co. have long since resumed a normal condition, & are showing satisfactory increases over a year ago." The old directors were re-elected, viz: H. A. Everett, President; T. H. Smallman, Vice-President, and Messrs. Moore, Wasson, Spencer and Broderick as the other directors. C. E. A. Carr was re-elected General Manager & Sec.-Treas. It was decided to double-track Richmond street from the C.P.R. crossing to Oxford street.

On Jan. 31 Judge Elliott passed sentence on



Rhodes, Curry & Co.,

Ltd.,

Railway and Street Cars

of all descriptions.

Special Cars for Coal, Ore,
Lumber, &c., with Ball-
Bearing Wheels. * *

Car Wheels, Castings, Forgings, &c.
AMHERST, NOVA SCOTIA.

To Los Angeles and Southern California.

Every Friday night, at 10.35 p.m., a through Tourist Car for Los Angeles and Southern California leaves the Chicago, Milwaukee & St. Paul Railway Union Passenger Station, Chicago, via Omaha, Colorado Springs and Salt Lake City, for all points in Colorado, Utah, Nevada and California.

In addition to the regular Pullman porter, each car is accompanied by an intelligent, competent and courteous "courier," who will attend to the wants of passengers en route. This is an entirely new feature of tourist car service and will be appreciated by families or by ladies travelling alone. Particular attention is paid to the care of children, who usually get weary on a long journey.

These tourist cars are sleeping cars supplied with all the accessories necessary to make the journey comfortable and pleasant, and the berth rate (each berth will accommodate two persons) is only \$6.00 from Chicago to California. Ask the nearest ticket agent for a tourist car folder, or address A. J. Taylor, Canadian Freight and Passenger Agent, 8 King Street East, Toronto, Ont.

All Cuts used in the RAILWAY
AND SHIPPING WORLD,
and owned by the Publishers, are
.....For Sale.

six prisoners convicted of offences in connection with the street railway troubles. R. Howard, convicted of setting fire to a street car at Pottersburg, was sentenced to two years in Kingston Penitentiary. J. Barrett, for throwing stones, was sentenced to nine months in the Central Prison. F. Goodacre, for rioting & turning the switch at Lyle street, was fined \$50 & sentenced to two months in jail from Dec. 16 last. In default of payment of the fine, two months will be added. W. H. Tarling, W. Jeffries & W. Hayes were each condemned to pay \$25 or two months in jail. A. E. McNamara had his sentence reduced. On payment of a fine of \$15 he will be released, having been in jail since Jan. 22.

At Osgoode Hall, Toronto, Jan. 17, Judges Osler, MacLennan, Moss & Lister gave judgment on the appeal by this Co. from the judgment of a Board of County Court Judges, one judge dissenting, confirming assessment by the city of London of the poles, rails, wires, etc., of the Co. It was contended that the assessment was based on the value of the articles to the railway as a running concern, & not on the basis laid down in re Bell Telephone Co. & City of Hamilton, 25, A.R., 351. Held, that the amount fixed by dissenting judge below for poles, etc., & bridges is right, & that nothing should be allowed for track allowances. Appeal allowed with costs.

Metropolitan Ry.—In addition to the application mentioned in our last issue, pg. 27, this Co. is applying to the Ontario Legislature for power to connect its tracks at its southern terminus, & at any other points at or near to its line with the tracks of the C.P.R., the G.T.R., the Schomberg & Aurora Ry., & the Oshawa Ry., to make traffic & running arrangements with any of these companies to operate its entire railway by electricity; to extend its railway to Shelburne, & through or near Stouffville, thence through the Township of Pickering to or near Claremont, thence through the Townships of Pickering, Whitby & East Whitby to Oshawa; to extend the time for the construction of the Co.'s railway, & also enabling the Co. to exercise within Toronto the powers, &c., contained in the Railway Act clauses & amendments incorporated with the Co.'s acts.

In the case of the City of Toronto vs. this Co., Judge Falconbridge gave judgment in Toronto, Jan. 12, on motion to continue injunction restraining defendant from taking any steps towards effecting a junction of its line with the C.P.R. at North Toronto, & secondly, to restrain defendant from using electricity or propelling its cars therewith within the limits of the City of Toronto. The motion was by consent turned into a motion for judgment. By an order the Railway Committee of the Privy Council, after reciting the consent of the City of Toronto, approved of defendant connecting its tracks with those of the C.P.R., by means of a switch, in the City of Toronto, as shown on a plan, & subject to certain conditions. Held, after an exhaustive review of the statutes & agreements affecting the matter, that the real crux of the case is whether the defendant has the right without the authority or consent of the plaintiff to occupy, expropriate or otherwise to force its way over the land of the plaintiff so as to enter the land of the C.P.R. & make a junction, & not a mere crossing as to which place of crossing merely, the Privy Council, it is clear, has power to approve. The representatives of the city protesting against the proposed connection, & against the jurisdiction of the Privy Council, made the best terms they could as to the mode of union, but did not thereby assume to give a conveyance of the right of way from the present track of the defendant at its terminus over the plaintiff's land to the C.P.R. track. The defendant as a mere street railway has no rights of expropriation, nor has it any such rights under the statutes affecting it & the agreements made by & with it.

Such rights do not exist by virtue of the application of any clauses of the railway act, nor by virtue of defendant's charter or by agreement with plaintiff. Even if defendant is a "railway" within the meaning of the railway act, sec. 188 is not applicable, for it is not here proposing to carry its line "along an existing highway," & it cannot now avail itself of sec. 187, because it has not complied with its provisions as to expropriating land. The defendant must therefore be perpetually restrained. Plaintiff is also entitled technically to succeed on the second branch of the case. Judgment for plaintiff, with costs of motion & action. The Co. at once gave notice of appeal.

Niagara & Southwestern Electric Ry.—J. S. Campbell, solicitor, St. Catharines, Ont., gives notice of application to the Ontario Legislature to incorporate a company under this name with power to construct & operate an electric railway from Niagara-on-the-Lake through or near St. Catharines, & the village of Smithville, to Hagersville, with branches from the main line at or near De Cew Falls to Hagersville via Dunnville & Cayuga, & from Niagara-on-the-Lake to Queenston.

The Niagara, St. Catharines & Toronto Ry. Co. gives notice that a mortgage deed, dated Nov. 1, 1899, made by the Co. to the National Trust Co., securing a bond issue, has been deposited in the office of the Secretary of State for Canada.

The Co. is having 4 motor cars built. They are each 50 ft. in length, will accommodate 40 people & are provided with separate smoking & baggage departments.

Ottawa & Dundas Electric Ry.—Notice is given of application to the Ontario Legislature to incorporate a company under this name, to construct & operate a railway from Ottawa, through the townships of Gloucester & Osgoode, & through the county of Dundas, to some point on or near the St. Lawrence River, with branch lines.

Ottawa Electric Ry.—At the annual meeting, Jan. 29, the following report was presented for the year ended Dec. 31, 1899, shewing a net profit of \$85,280.37. Out of this amount 4 quarterly dividends of 2% have been declared, amounting to \$65,184, leaving \$20,096.37 to be carried forward to the credit of profit & loss, making the total to the credit of that account \$95,080.81. The gross earnings for the year were \$263,545.05, compared with \$231,806.02 in 1898. In order to provide against the disablement which an accident to the Co.'s power house plant would probably cause, a duplicate power plant consisting of a set of horizontal water wheels of a capacity of 1,800 h.p., directly connected to a generator of a similar capacity, is being installed. The new plant will be housed in fire-proof buildings. It is expected this duplicate plant will be ready for operation within the next few weeks. In Sep., 1899, a contract was made for the building of an extension of the Co.'s lines from Holland Avenue, in Hintonburgh, to Britannia-on-the-Bay, about 4½ miles. The work will be ready about May 1 next. The western terminus is beautifully situated on the bay, & is the only absolutely safe beach for bathing in the neighborhood of Ottawa. This line should become very popular, as the route is very picturesque; the road double tracked with 72 lb. rails, & the equipment modern & up to date. A Sunday car service was inaugurated on July 23 last. Late last season, the City having decided to lay an asphalt roadway on Wellington St., between Lyon & the junction of Sparks St., the Co. renewed its tracks for this distance, putting down a 72 lbs. rail instead of the then existing 56 lbs. rail. As has been the custom, everything connected with the system has been kept in a good state of repair, & the high standard which has been aimed at ever since the Co. commenced operations has been maintained.

STATISTICAL STATEMENT 1892 to 1899.

	11 Mos. to May 31, '92.	12 Mos. to May 31, '93.	12 Mos. to May 31, '94.	12 Mos. to May 31, '95.	7 Mos. to Dec. 31, '95.	12 Mos. to Dec. 31, '96.	12 Mos. to Dec. 31, '97.	12 Mos. to Dec. 31, '98.	12 Mos. to Dec. 31, '99.
Gross receipts.....	\$71,698.99	\$110,071.67	\$120,484.02	\$193,991.36	\$128,173.98	\$212,105.85	\$223,801.67	\$231,802.06	\$263,545.05
Total expenses.....	45,199.80	70,221.25	83,324.64	122,335.67	73,083.48	144,360.24	151,462.04	159,158.91	178,204.68
Net profit.....	26,499.19	39,850.42	46,159.38	71,655.69	54,190.50	67,745.61	72,339.63	72,643.15	85,340.37
Passengers carried.....	1,520,405	2,304,504	2,797,281	4,119,084	2,843,173	4,583,235	4,762,082	5,133,938	5,833,829
Percentage of operating expenses to receipts.....						54 7/8	54 7/8	59	57 1/2

ASSETS AND LIABILITIES DEC. 31, 1899.

ASSETS.	
Roadbed & equipment, waterpower property & plant, real estate & buildings.....	\$1,312,812.93
Stores.....	3,573.49
Accounts receivable.....	1,941.26
Discount unearned.....	4,465.00
Cash on hand.....	4,642.06
	<u>\$1,327,434.65</u>

LIABILITIES.	
Capital stock.....	\$814,800.00
Bonds, 4%.....	310,000.00
Dividend 22, payable Jan. 2, 1900.....	16,296.00
Accounts payable.....	17,221.92
Bank of Commerce.....	24,035.92
Bills payable.....	50,000.00
Balance carried forward.....	95,080.81
	<u>\$1,327,424.65</u>

PROFIT AND LOSS ACCOUNT.	
Balance at credit Dec. 31, 1898.....	\$74,984.44
Net profit in 1899.....	85,280.37
	<u>\$160,264.81</u>
Dividends paid April 1, July 1, & Oct. 1, 1899, & Jan. 2, 1900.....	\$65,184.00
Balance at credit Dec. 31, 1899.....	95,080.81
	<u>\$160,264.81</u>

Following are the officers for the current year: President, T. Ahearn; Vice-President, J. W. McRae; other directors, G. P. Brophy, W. Y. Soper, P. Whelan, T. Workman, A. Lumsden; Sec.-Treas., J. D. Fraser.

In the case of the village of Hintonburg versus this Co., decided Jan. 16 in the Court of Appeals, Toronto, the facts were as follows:

TORONTO ENGRAVING CO.
DESIGNERS, ENGRAVERS,
ELECTROTYPERS.
92 BAY ST.

INCOME ACCOUNT.

Dividends paid April 1, July 2 & Oct. 1, 1899,	
& Jan. 2, 1900	\$240,000.00
Pavement charges	64,000.00
Balance	128,869.43

Income over & above all expenses & fixed charges to Dec. 31, 1899 \$432,869.43

The old board was re-elected as follows: President, Wm. Mackenzie; Vice-President, Jas. Ross; other directors, Hon. G. A. Cox, W. D. Matthews, C. E. L. Porteous, F. L. Wanklyn, J. Gunn.

The gross earnings for Jan. were—

	1900	1899	Increase.
Jan.	\$113,703.96	\$95,690.12	\$18,013.84

Judgment was given by the Court of Appeal at Osgoode Hall on Jan. 16, on the appeal by the T.R. Co., against the judgment of Judge Ferguson, who decided that in ascertaining the mileage chargeable to the Co. under the agreement between it & the City, all tracks of the Co. in the City must be measured. The principal contention was as to the meaning of the word "turn-out." The contract between the City & the Co. provided that turn-outs should not be charged for. The contention by the City was that there are no turn-outs, inasmuch as the railway is a double track line, & its counsel contended that only side tracks were intended to be meant by the word turn-out. It was contended on the part of the Co. that some meaning ought to be given to the expression, & that as the agreement provided for the street railway portion of the roadway being 16 ft. 8 in. in the centre thereof, & provided only for straight lines of track on the different streets, that curves or other methods of turning from one street to another were the turn-outs meant by the agreement. It was also contended that at intersections the track was not to be charged for twice, inasmuch as only the same portion of the roadway was taken up. The Court of Appeal confirmed the judgment of Judge Ferguson, & declined to exclude from payment of mileage any of the tracks where there is more than one double track on the street railway part of the street, or where there are connecting railway tracks, or Y tracks, or temporary tracks, or tracks to sheds, or broken parts of a mile, or tracks in places where the City has not put down permanent pavements in conjunction with the laying of the tracks. The Court, however, sustained the Co.'s contention as to that part of the railway which is not on the streets of the City, namely, the portion in High Park. The counter-claim of the Co. for the value of pavements which were brought from the City at the time of the original purchase, & which were paid for by the Co., & afterwards taken possession of by the City, was disallowed, the Court holding that such pavements were part of the highway, & that the materials therefor belonged to the City & not to the Co.

Toronto Suburban St. Ry.—At the annual meeting, Jan. 24, the following were elected:—President, F. Turner; Vice-President, E. P. Heaton; other directors, R. W. Smith, R. T. Henderson, A. Royce, Jr., R. L. McCormack. There was a general discussion as to extending the road further into the county, & arrangements were made to go into the matter in detail.

Woodstock, Thames Valley & Ingersoll Electric Ry.—Wallace & Little, solicitors, Woodstock, give notice of application to the Ontario Legislature to incorporate a Co. under this name, to construct & operate an electric railway in & through the town of Woodstock, & through the township of West Oxford to, in, & through the town of Ingersoll, with a branch from Beachville to Embro. The town of Woodstock has granted the promoters of this Co. a 50 years' franchise.

Electric Lines in Western Canada.

British Columbia Electric Ry.—Earnings & expenses for Dec., 1899:

EXPENSES FOR DECEMBER, 1899.				Increase. or Decrease.
GROSS EARNINGS.	1898.	1899.		
Railway—Vancouver division	\$5,866	\$7,676	\$1,810+	
Victoria	7,419	8,272	853+	
Westminster	5,704	7,030	1,326+	
Lighting—Vancouver	15,265	14,671	594-	
Victoria	7,268	8,046	778+	
Total gross earnings	\$41,522	\$45,695	\$4,173+	
Working expenses	\$23,989	\$23,122	\$867-	
Net earnings	\$17,533	\$22,573	\$5,040+	

Gross earnings April 1 to Dec. 31 \$307,711 \$341,605 \$33,894+

Net earnings from April 1 to Dec. 31 \$126,966 \$154,686 \$27,720+
+ Increase, - Decrease.

The Co. is believed to have in contemplation several improvements of an extensive character to its Victoria system. As soon as that city determines upon the question of the replacing of the James Bay & Rock Bay bridges with structures of a more stable character, & the paving of Yates St., the Co. will double track the line from Oswego St., James Bay, to the Fountain. When this has been accomplished the C.P.N. Co. may consider it advisable for the str. Islander to leave from the outer wharf instead of the inner harbor on the new daylight service, providing the tramway service will cause no inconvenience to passengers. The Co. has reduced its fares in Victoria, & now sells 25 tickets, good over all lines within the city limits at any time, for \$1. It is expected that larger cars will be placed on the Esquimalt run as soon as arrangements are completed with the City in regard to the bridges on that route.

Traffic Manager Shiles has been transferred to New Westminster, his place in Vancouver being filled by J. J. Franklin.

Winnipeg Electric St. Ry.—H. J. Somerset, Operating Manager, recently resigned to take the position of General Manager of the street railways of Perth, Australia, for which place he has started. It is understood that H. Cameron, who for some time has been Business Manager of the Co., will now assume the whole management.

When in Winnipeg recently Wm. Mackenzie, of Toronto, speaking of the proposition from the city to purchase from the Co. the privilege of charging double fares after 11 p.m., said he would be willing to consider this & any other proposition the city might have to make. Asked if he would care to dispose of the railway to the city, he said:—"If it pays the city no better than it has paid the Co. in the past, there will be little in it for the public. We kept this railway going when the city was poor, & now when things are looking up, it is hardly right that we should be asked to sell it. However, we would consider any proposition they may make."

Havana Electric Ry. Co.—W. M. Doull, who recently returned to Montreal from Cuba, said in an interview:—"The Havana Electric Ry. Co., of which W. Hanson, of Montreal, is President, having amalgamated its interests with those of the Havana Traction Co., will now proceed with its work of reconstruction, & some 30 miles of track will be laid. The other parties interested are the Banque Internationale, of Paris; Buffer & Todd, of London; & what is known as the Harvey Syndicate, of New York. The railway will be running by Sep. 1, as the rails are now being landed, & the machinery will be shipped without delay. This, however, is not all, as the Cuban Electric Co. is another concern almost wholly controlled by Canadians, A. F. Gault being President, & W. M. Doull, Secretary-Treasurer. This Co. has secured the ferry system between Havana & a place call-

ed Regla, on the opposite side of the harbor, & containing a population of about 12,000 people, the locality being also the centre of coal depots, several docks & manufacturing enterprises. Regla promises to become the Jersey City of Havana, & from here the Cuban Electric Co. has secured the right of way to Guanabacoa, three miles distant, & a first-class electric tramway will be in operation between these two points early in Mar."

Demerara Electric Co.—F. B. Brothers, well known in Montreal & Toronto electric railway circles, recently returned to Montreal from Demerara, where he is manager of construction in the Demerara Electric Co. He stated that he was making arrangements for the purchase of rails, cars, &c., & that he would return just as soon as possible, as he expected that within six months the whole system would be in active operation. The Montreal capitalists who have purchased the old Georgetown tramway, with its mule motor power, as well as the electric light system, will immediately change the former, & it is believed the system will become a very profitable one. In the first place, some 12 or 15 miles of track will be laid down in the city of Georgetown, which has a population of some where near 70,000, but the company expects to make very considerable extensions later on. Mr. Brothers, in speaking of the population that would probably use the new electric railway when these extensions are made, said that there were fully 25,000 coolies within a short distance from the city proper, all of whom were engaged on the sugar plantations, consequently they had to go into Georgetown almost daily. Mr. Brothers stated that the company had already the station buildings, the car shed & power house well under way, & that as soon as the requisite rails & other material were received from Canada, the entire work would be rapidly pushed forward to completion.

C.P.R. Company's Telegraph.

The building which has been erected on Hastings Street, Vancouver, for the headquarters of the C.P.R.'s commercial telegraph in that city attracts universal attention by its symmetrical proportions & general architectural attractiveness. The exterior of the building, which is constructed along the lines of the latest period of French architecture, is exceedingly handsome. Carved on the capitals are a number of grotesque heads in the Romanesque style, which add greatly to the appearance of one of the most handsome fronts in the city. Although principally devoted to the use of the C.P.R. Co.'s Telegraph, there will also be an up-town ticket office on the ground floor of the new edifice. In point of richness of design & finish, the interior of the ground floor of this building is unequalled by any used for similar purposes, from coast to coast, in the Dominion. It is on this floor that the telegraph & ticket offices are situated. A private office is provided for the Ticket Agent, also one for Local Manager Quigley, of the Telegraph Department. In the rear, on the ground floor, is a commodious room where the ubiquity of the small boy, of the genus known as telegraph messenger, will receive an effectual quietus for the time being. All messages for delivery will be handed to the boys through a window opening into their room. A door in this room opening on the lane provides an entrance & exit for the messengers. The heating of the entire structure is by hot water. The whole lower floor has been decorated, regardless of cost, consistent with the exacting requirements of a corporation which aims to please its patrons. All the wood finishing, such as wainscoting, partitions, &c., is in oak. The counters of the telegraph & ticket offices are topped with heavy plate glass, which is rather unique. Some very fine work has been done on the pannel-

ling of the ceiling. There are also store-rooms, cloak-rooms, lavatories, &c., on each floor. The sanitary & heating arrangements throughout the building are of the most up-to-date character. Luxfer prisms are used in a number of transom lights, to afford the greatest amount of illumination. The ground floor is connected with the operating room by pneumatic tubes; telegrams are placed in a small leather box, then inserted in the tubes, electric power turned on, & wind pressure created by means of a small blower. Received telegrams drop from the operating room into the delivery department by gravity. Tubes also connect the Superintendent's office with the operating room & the first floor.

The operating room has a capacity for 15 quartette operating tables, although only 9 are being set up at present. It is lighted by 3 large windows in the front & a skylight in the rear, & the ceiling being 14 ft. high, & the room well ventilated, the operators will have very pleasant quarters. The tables were made in Vancouver according to the standard adopted by the Co. The tops are of red cherry; the legs, etc., are of hard maple. Instead of the tables being divided into 4 spaces by glass partitions, as formerly, the sounders (or reading instruments) are placed in small resonators by which the sound is directed to the operator's ears. The tables are connected by cables through zinc-lined ducts under the floor to a distributing board in the switch cabinet. This cabinet is a novelty on the Pacific coast. The face of it is divided into 3 portions, the first on the left being devoted to the battery switches & appurtenances. These are mounted on a marble slab in order to prevent any danger from fire through the arcing of the electric currents. The centre portion is occupied by what is known as a local switch,

by means of which any duplex, quadruplex or single wire can be connected with any other set in the office, thus permitting wires to be worked through, for instance, from Montreal to San Francisco without the interposition of the operator at Vancouver. The remainder of the centre section is taken up by a number of small electric light switches which are used for varying the power on the different multiplex sets. The right hand section is occupied by the main line switch, a patent especially designed to avoid any arcing of the electric currents, which is very liable to happen in a moist climate when either storage battery or dynamo currents are used. Nearly the whole of the upper portion of the cabinet is covered by incandescent lamps. These are for the purpose of lengthening out the various circuits in the office; they are also frequently of benefit in calling attention to outside interference with the wires, as when any wire becomes earthed or crossed by another wire within 40 or 50 miles of the city the lamps will glow, thus directing the attention of the chief in charge who at once disconnects the battery power & tests out the fault. Inside of the cabinet are two motor generators. These are used to transform the 500 volts electric railway current to 140 & 7 volts, respectively, for the purpose of charging the storage batteries. At the other end of the interior of the cabinet is the before-mentioned distributing board & the terminals of the aerial cables. A number of short cables connect one portion of the distributing board to the various appliances on the face of the cabinet. Connection is made from these cables to the cables from the tables by short pieces of wire. By this arrangement any change that it is desired to make in the wiring of the office can be easily made at this point without altering the connections



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 promptness secures business
 immediate information is required:
 an answer is wanted, and wanted quick:
 you are not in business for exercise:

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Embroidery in Gold and Silver Bullion,
 As Letters, Badges, Wreaths, &c., &c.

W. H. CODDINGTON,
 Hamilton, Ontario.

NOTICE is hereby given that The Dominion Atlantic Railway Company will apply to the Parliament of Canada, at the next session thereof, for an Act confirming the company's issues of capital stocks, the conveyance to the company by the Windsor and Annapolis Railway Company, dated the third of December, 1895, the Mortgage Trust Deeds made by the company, and the first and second debenture stocks, issued and to be issued, thereunder, to the amount of 940,000 pounds (sterling), and also to enable the company to increase the capital stock, borrow and secure money upon ships and other outside property of the company, to create reserves, and for other amendments to the Act incorporating the company.

CHRYSLER & BETHUNE,
 Solicitors for the Company.
 Dated the 7th November, 1899.

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 D. Douglas, Proprietor. Rooms en suite with baths and all modern conveniences. Rates \$2 to \$4 a day. Special rates for families and large parties, according to accommodation and length of time. Though moderate in price the Leland is first-class in every respect. It is especially adapted to please the commercial trade. It is in the centre of the wholesale and retail district. It is in direct communication with all parts of the city by car lines. It is supplied with the purest spring water from flowing well on the premises.

The Canadian Pacific Railway Company.

Dividends for the half-year ended 31st December, 1899, have been declared as follows:—
 On the Preference Stock two per cent.
 On the Common Stock three per cent.

Warrants for the Common Stock dividend will be mailed on or about April to Shareholders of record at the closing of the books in New York and London respectively.

The Preference Stock dividend will be paid on Monday, 2nd April, to Shareholders of record at the closing of the books at the Company's London Office, 1 Queen Victoria Street, London, E.C.

The Common Stock Transfer books will close in London at 3 p.m. on Tuesday, 27th February, and in Montreal and New York on Friday, 9th March. The Preference Stock books will close at 3 p.m. on Tuesday, February 27th.

All books will be reopened on Thursday, 5th April.
 By Order of the Board,
CHARLES DRINKWATER,
 Montreal, 12th February, 1900. Secretary.

THE FIRSTBROOK BOX CO.,
 LIMITED.
**CROSS ARMS, TOP PINS,
 AND SIDE BLOCKS,
 TORONTO.**

The Canadian Pacific Railway Company.

NOTICE TO SHAREHOLDERS.

The Nineteenth Annual Meeting of the Shareholders of this Company for the election of Directors and the transaction of business generally will be held on Wednesday, the fourth day of April next, at the principal office of the Company at Montreal at 12 o'clock noon.

The Common Stock transfer books will close in London at 3 p.m. on Tuesday, 27th February, and in Montreal and New York on Friday, 9th March. The Preference Stock books will close at 3 p.m. on Tuesday, February 27th.

All books will be reopened on Thursday, 5th April.
 By Order of the Board,
CHARLES DRINKWATER,
 Montreal, 12th February, 1900. Secretary.

at any other place. The terminals of the aerial cables are thoroughly protected by both ground plates & fuse wires, so that no lightning or other heavy current can endanger any part of the apparatus in the office. The wires are brought from the railway to the office by cable.

On the second floor is the office of the Superintendent of Telegraphs for the Pacific division, a room for newspaper correspondents & the battery room. In the battery room there are 500 small cells of storage battery for working the main lines, & 8 cells of a much larger type for working the sounders. These batteries take up very little space, and replace some 1,200 chemical cells which were used in the old office. Their capacity is equivalent to 4,000 cells of the old style.

The architect of the building was C. R. Oldershaw & the contractor T. Tompkins. W. J. Camp, recently appointed Superintendent of the Co.'s eastern telegraph lines, planned out the whole work of fitting the office while he held the position of Electrician of the Co., & went out to Vancouver in Jan. to superintend the work, in which he was assisted by J. Fletcher, chief operator at Vancouver, who is an expert electrician & has become thoroughly familiar with the new appliances. It may be added that in future all messages received in the Vancouver office will be written on typewriter machines.

Superintendent Wilson, of the Pacific Division, says the telegraph line recently opened along the line of railway from West Robson to Midway, B.C., is one of the best constructed in Canada & that a large business is already being done on it.

The Co. has purchased the building which it has for some years occupied as telegraph headquarters at the corner of Hospital & St. Francois Xavier streets, Montreal. The building will be replaced by an up-to-date structure, the erection of which will probably be commenced in the spring. Temporary quarters will have to be found, but where these will be has not yet been decided upon. It is too early to say what the plans of the new structure will be like, but it is safe to assume that the building will be a credit alike to the Co. & to the city.

On the lines west of Lake Superior a large amount of work will be done during the coming summer. The work of strengthening & renewing the pole line, which has been in progress for the past three years, will be continued. The main line on the Western Division will be finished to Laggan. The line from Fort William will be first class throughout in every respect, & second to none on the continent. To provide adequate facilities, additional wires will be strung in Manitoba, between Winnipeg, Napinka, & Estevan, & on the main line west of Moosomin. On the Pacific Division considerable work will be done on the pole line on the main & branch lines. Additional wires will be strung in the Kootenay district.

The Pacific Cable Question.

In the British House of Commons, Feb. 1, J. F. Hogan, M.P., questioned Colonial Secretary Chamberlain in regard to the Pacific cable scheme, & elicited the following reply:—

"I am making enquiries with a view to a settlement of some definite scheme with regard to the Pacific cable. These enquiries relating to technical questions necessarily take time. There is no doubt but that there will be no avoidable delay."

Mr. Hogan also had an enquiry in regard to the concessions to the Eastern Extension Telegraph Co., by the Government of New South Wales, & Mr. Chamberlain, in reply, said that he understood that the application was under the consideration of the Australian Government, but he had not yet been informed

whether they had arrived at a decision. The bearing of the application on the prospects of the Pacific cable would no doubt have been fully considered by them.

The Colonial Office is in receipt of a number of communications from Canada and the Australian colonies regarding the pending danger to the scheme for an all-British cable from Canada to Australia through the grasping methods of the Eastern Telegraph Co. Lord Strathcona pointed out that the concessions to the Eastern Telegraph Co., in New South Wales, sanctioned by the Colonial Office, but not yet put into effect, are likely to be inimical to the scheme, & it is now learned that land line facilities asked for by the cable company in Australia are not likely to be granted until the matter is thoroughly sifted. The board elected to go into the question of the cost of constructing the Imperial cable is continuing its labors, & the calls for tenders are to be sent out shortly. Its hands are strengthened by the British Empire League, which has passed a resolution in favor of refusing assent to the concessions asked for, & recording its opinion that the Pacific cable scheme is of vital strategic & commercial importance to the Empire.

Montreal Telegraph Company.

At the 53rd annual meeting in Montreal, Jan. 11, the following balance sheet was presented to Dec. 31, 1899:

ASSETS.	
Telegraph lines.....	\$1,625,890.00
Telegraph cables.....	33,487.39
Offices & equipment.....	212,500.00
Real estate, in Montreal, Ottawa, Quebec & Toronto.....	279,946.46
Cash, other real estate (old telegraph building, St. Sacrament St., Montreal), accounts receivable, &c.....	115,988.13
	\$2,267,811.98
LIABILITIES.	
Shareholders' capital.....	\$2,000,000.00
Dividend 142, payable Jan. 15, 1900.....	40,000.00
Unclaimed dividends.....	586.20
	\$2,040,586.20
Excess of assets over shareholder's capital..	151,823.85
Contingent fund.....	75,401.93
	\$2,267,811.98

Since the presentation of the last annual report, 4 quarterly payments of the dividend of 8% per annum, guaranteed by the Western Union Telegraph Co., have been made. The Co. continues free from debt or encumbrance of any kind.

The directors were unanimously re-elected as follows:—President, A. Allan; other directors, H. Mackenzie, J. Joseph, W. Wainwright, H. Archbald, H. A. Allan, W. McMaster.

Dominion Government Telegraph Lines.

J. B. Charleson left Ottawa Jan. 31, with 25 men, to construct the branch telegraph line between Bennett & Atlin, B.C.

Some information about the Kamloops Nicola, B.C., telegraph line will be found under the head of General Telephone Matters on this page.

The Dawson Board of Trade has petitioned the Yukon Council to consider the advisability of extending the telegraph service down the river as far as Forty Mile, the boundary settlement to the north. The large U.S. population in Dawson are discussing the possibility and usefulness of a service from Forty Mile to St. Michael's.

Dominion Commissioner Ogilvie, in discussing the question of Alaska and Yukon Territory telegraph service, asserts his belief that that country is especially adapted for the Marconi system, on account of the succession of mountain peaks & the rarefied condition of the atmosphere. He would like to see the system tried there.

The Northern Commercial Telegraph Co., gives notice of an application to the Dominion Parliament for an act extending the time for commencing & completing the lines authorized to be constructed by the Co., to increase its capital stock, & for other purposes.

Nearly 200 skilled telegraph operators from the British Post-Telegraph Department have gone to the seat of war in South Africa, & have been rendering splendid service. The Wheatstone automatic system is used on the field of battle, & probably for the first time in the history of warfare. It was worked duplex. Telegraphers were under fire for a whole day at Modder River, & still sent their messages. Both official despatches & press messages, numbering 100,000 words, were sent at this time. After the Magersfontein battle the operator sent despatches at the rate of 200 words a minute. A tape, of course, was prepared by punchers in advance.

It is said that the Ann Arbor Ry. has closed a contract with the Marconi people for apparatus to operate a system of wireless telegraphy in connection with the car ferry business of that road across Lake Michigan. One office is to be at Frankfort, Mich., on the east side of the lake, & the other at Menominee, Mich., on the west side, the distance between the two points being 83 miles. A direct line between the two points passes across the peninsula to the east of Green Bay. At present the railway company must depend for telegraphic communication, upon a line around the lake, through Chicago, & quite frequently, during stormy weather, the company is put to a good deal of inconvenience by the interruption of such communication. It is said that if this system fails to operate satisfactorily a cable will be laid across the lake.

General Telephone Matters.

It is said that the Nova Scotia Telephone Co. will extend its lines to Sydney, which will include cable connection across the Strait of Canso.

The Columbia Telephone & Telegraph Co. & the Spokane Falls & B.C. Telephone Co. have amalgamated. Their lines run through the various mining camps & towns of West Kootenay.

It is announced that the Dominion Minister of Public Works has arranged for the telegraph line recently completed between Kamloops & Nicola, B.C., to be changed to a telephone system.

J. R. Brown, solicitor, gives notice that application will be made to the B.C. Legislature to incorporate a company to construct & operate telephone & telegraph lines within that province & with other powers.

The People's Telephone Co. gives notice of application to the Quebec Legislature for the confirmation of powers already given by its letters patent, for an increase of its capital stock, & for the issuing of bonds.

The Pontiac Telephone Co., with headquarters at Bryson, Que., has sold its plant, &c., to the Rev. G. A. Picotte, of Calumet Island, & the Rev. V. Ferrarie, of Vinton. It is said to be their intention to extend the line to Pembroke, Ont.

The New Westminster & Burrard Inlet Telephone Co., which operates in Vancouver & New Westminster, connects by its long distance lines with 15 other offices in British Columbia, most of which are in the delta of the Fraser. It also has long distance connection with 31 points in Idaho, 56 in Oregon, & 127 in Washington.

A Toronto broker has issued a prospectus of the Dodge Telephone Co. of Canada, Ltd., the capital being stated as \$3,000,000, divided into 1,500,000 8% fixed cumulative preference shares of \$1 each and \$1,500,000 ordinary shares of \$1 each, for the former of which

ASSESSMENT SYSTEM.



THE BEST FRATERNAL BENEFIT SOCIETY IN THE WORLD.

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Cost to Join the I.O.F.

(For \$1,000 Mortuary Benefit.)	(For more than \$1,000 Mort. Benefit.)
Initiation fee (minimum).....\$1 00	Cost to take \$2,000 Mort. Benefit..\$6 00
Certificate fee.....1 00	" " \$3,000 " " 7 00
Registration fee.....1 00	" " \$4,000 " " 9 00
Medical Examination fee.....1 50	" " \$5,000 " " 10 00
Total minimum cost.....\$4 50	Sick benefits, when required, cost extra.

Benefits given by the I.O.F.

- 1.—Social and Fraternal Privileges of the Court Room.
- 2.—Free Medical Attendance by Court Physician where not dispensed with by Court by-law; also trained nurses in certain cases.
- 3.—A Sick Benefit of \$3 to \$5 per week, subject to provisions of the Constitution and Laws of the Order; optional, and when taken costs extra.
- 4.—A Total and Permanent Disability Benefit of one-half of face value of policy, with exemption from further payment of premiums or Court Dues.
- 5.—An Old Age Benefit consisting of exemption from payment of premiums and Court dues after age 70.
- 6.—An Old Age Disability Benefit of one-tenth of face value of policy payable yearly for ten years, on being declared totally and permanently disabled by infirmities of age after the seventieth birthday.
- 7.—An Old Age Pension payable during disability, which may be taken as a substitute for the Old Age Disability Benefit.
- 8.—A Burial benefit of \$100 at death of a Pensioner.
- 9.—A Funeral Benefit of \$50 at death of a member enrolled in Sick and Funeral Benefit Department.
- 10.—The Mortuary Benefit of \$500, \$1,000, \$2,000, \$3,000 \$4,000 or \$5,000.

The Members, the Benefits, and Their Assurance

At 31st December Each Year.

Year.	Total Membership.	Benefits Paid.	Total Surplus.	Surplus per Capita.	Death Rate per 1,000.
1881	1,019	\$ 1,300 00	\$ 4,568 55	\$ 4 48	4.50
1882	1,134	12,058 86	2,967 93	2 61	11.00
1883	2,210	9,493 68	10,857 65	4 91	4.73
1884	2,558	13,914 31	23,081 85	9 01	4.23
1885	3,642	26,576 99	29,802 42	8 18	7.76
1886	5,804	28,499 82	53,981 28	9 30	4.85
1887	7,811	59,014 67	81,384 41	10 44	5.78
1888	11,800	89,018 16	117,821 96	9 98	6.43
1889	17,349	116,787 82	188,130 36	10 84	5.85
1890	24,604	181,846 79	283,967 20	11 54	5.18
1891	32,303	261,436 21	408,798 20	12 65	6.40
1892	43,024	344,748 82	580,597 85	13 49	6.25
1893	54,484	392,185 93	858,857 89	15 76	5.47
1894	70,055	511,162 30	1,187,225 11	16 94	5.47
1895	86,521	685,000 18	1,560,733 46	18 03	5.67
1896	102,838	820,941 91	2,015,484 38	19 60	5.50
1897	124,685	992,225 60	2,558,832 78	20 52	5.56
1898	144,000	1,176,125 14	3,186,370 36	22 12	5.67

For Further Information Respecting this Great Fraternal Benefit Society, Apply to

Oronhyatekha, M.D., S.C.R., Toronto, Ont.

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James Marshall, 24 Charing Cross, London, Eng.

A. E. Stevenson, 6436 Kimbark Ave., Chicago, Ill.

Or Any Officer or Member of the Order.

subscriptions are asked. No board of provisional directors is named.

Some Maritime Province papers have given currency to a rumor that the Nova Scotia Telephone Co. would extend its line to Sydney, which would include cable connection across the Strait of Canso. We are informed that the matter has merely been spoken of, & has not been considered by the Board. Such a line would probably cost \$50,000, & it is not believed that there is enough present business to warrant such an outlay.

The New Brunswick Telephone Co. has decided to build a line from Fredericton to Chatham, N.B., & has let a contract to J. Barnes for supplying & erecting poles & cross arms & erecting the wire, the latter of which the Co. will furnish. The Co. is also reported to have closed a contract for a line from St. John to St. George, & on to St. Stephen, where connection will be secured with Calais, Me., which will give connection with other parts of that State, the system connecting with Calais being a pretty extensive one.

J. H. Jewell, claiming to represent the London & Berlin Banking Corporation, which is incorporated pursuant to the laws of England, has applied to the Toronto City Council asking for the right to lay conduits, pipes & mains, together with their connections, for the purpose of supplying telephones & to make the necessary excavations upon the public streets, etc., for the purpose of construction & repair. The petitioner says the Corporation will agree to furnish each department of the municipal government telephones free of charge, also to furnish telephones for business purposes at \$34, & for residential purposes at \$18 a year.

The New Westminster & Burrard Inlet Telephone Co. has presented a petition to the B.C. Legislature, stating that under the powers conferred by its act of incorporation passed in 1886 by the Legislature, it has established a telephone system in Vancouver, & has been operating the same for about 10 years, that about \$300,000 have been invested in the construction of the system, the greater part of the capital being owned by shareholders outside of the province, & that the plant, &c., is in good working order, & will not require in the ordinary course any alterations or repairs on any extensive scale for some years. The Co. protests against certain clauses of a bill which has been introduced in the Legislature on behalf of the city of Vancouver for the purpose of amending the city's incorporation act, & claims that the city should not be allowed to enter into competition with the Co. without first compensating the Co. on equitable terms. Other objections are taken to the bill, particularly in regard to the power which the city seeks to impose a license fee.

Telephone Competition Impracticable.

The Windsor, Ont., Record says:—"The gobbling up of the Detroit Telephone Co. by the Bell Co. reminds us of the attempt that was made to inflict two telephone systems upon Windsor. For a year or two past, the City of Detroit has had to bear the expense & annoyance of two telephone systems. Every business man was compelled to pay for two phones in his place of business, & many of them in their residences. The relief that this absorption of the second telephone company has been to the business men of Detroit is told by one of the papers. The Detroit News said:—

"No city is big enough for two permanent competing telephone systems, & that one of the local concerns should absorb the other was as inevitable from the beginning as sunrise & sunset. It is all very fine to theorize about competition; but competition in respect to telephone service must be as unsatisfactory to the customers as it is unprofitable to the companies. Telephone service is one of those

natural monopolies created by the very force of circumstances. There can be competition in telegraph service, in the express business, & with certain limitations, in the railway business, but competition in telephone service means a great deal of annoyance, if no increased expense, to the user, if he tries to secure as efficient a service through two companies as he could secure through one. Now that it has been gobbled up, eyes, suckers & tentacles, we have no disposition to sneer at the educational & humanizing influences that Mr. Pingree's quondam tame octopus exerted over the extraordinarily repulsive brute that the Bell Co. chaperoned; but we are not prepared to shed any tears because the previously mentioned tame octopus has been gathered into the omnivorous maw of its loathsome rival. It was ordained in the beginning that one of them had to go, & it was evident as well that the octopus with the fewer opportunities for increasing its rations would stand the less chance in such a contest, in which only the fittest can survive."

"The business men of Windsor will now appreciate the words of warning raised by The Record when the attempt was made to foist two telephone systems upon us & will thank the aldermen who stood out successfully against it. Two telephone systems & two street railway systems have been an expensive & fruitful source of annoyance to the people of Detroit & to those visiting that city. They were largely the outcome of political demagogues who were seeking for public favor. It is often a cheap way of gaining notoriety & a certain quality of popularity to denounce corporations, but it is often as unfair as it is injurious, where corporations are in possession of the franchise of a natural monopoly, such as a telephone or street railway system, then every precaution should be taken in the way of regulations to protect the interests of the public. Companies in possession of these great natural utilities should be compelled to give a reasonably good service & not be allowed to take excessive profits from the people. On the other hand, they should not be subjected to petty annoyances & neither should their capital be sacrificed or put in jeopardy by irresponsible popularity hunters or corporation smashers."

The Bell Telephone Company.

The Co. is constructing a fire alarm system in St. Thomas, Ont.

In London, Ont., the Co. is placing a number of its wires underground.

H. L. Simpson, Local Manager at Owen Sound, has been transferred to St. Catharines, Ont.

We are officially informed that the Co. has decided to construct a long distance line between Winnipeg, Portage la Prairie & Neepawa, & that the work will be proceeded with as soon as weather will permit.

It is rumored in Montreal that the Co. will enter suit against certain local manufacturers of phones on the ground of patent infringements. President Sise has given notice that the Co. owns Canadian letters patent 35,920, granted to J. J. Carly for improvements in telephonic circuits & arrangements, covering all forms of bridging bells.

The Co. has recently completed & opened for business a heavy long distance copper metallic circuit line between Ottawa, Carleton Place, Smith's Falls & Brockville. Work on this line was begun last May at Ottawa, & was expected to be completed in Oct., but owing to the quantity of rock encountered on the road, the work was somewhat delayed. The Co. used a portable steam rock drill to drill the holes before blasting, & for this purpose 10,000 lbs. of dynamite were used. The completion of the line required upwards of 3,500 poles, 4,000 cross arms & 75,000 lbs. of

copper wire. This line gives Ottawa a most direct & perfect long distance service with Buffalo, Toronto, Hamilton, London & other western points, & at the same time a reduction has been made in the rate for conversations to such places, as formerly business had to go via Montreal to reach them. Additional copper circuits have been constructed between Smith's Falls, Irish Creek & Brockville, & long distance offices opened at North Augusta & Algonquin; also a heavy copper circuit from Brockville to Prescott connecting direct to Ogdensburg through the new submarine cable across the St. Lawrence river at Prescott, which was laid about a month ago. This will give Ottawa direct & prompt connection with Utica, Watertown, Ogdensburg & other Central New York points. The Co. has also constructed an additional copper wire to Arnprior, which will be used to convert the existing single line to a metallic, greatly improving the service to upper Ottawa points. With the above new long distance lines & those already in use, Ottawa will have a long distance telephone service second to none, which may be further improved, as the Co. is considering the construction of new copper metallic lines between Carleton Place & Pembroke, & Perth & Smith's Falls, during the coming spring.

Among the Express Companies.

The Dominion Ex. Co. announces, until further notice, shipments of money & c. o. d. shipments must not be received for points on Montford & Gatineau Colonization Ry.

The Dominion Ex. Co. has opened offices at Garden River, Dinorwic, & Busted, Ont.; Cascades, Que.; Cowan, Man.; & Pasqua, Assa. The office at Temiskaming, Ont., has been closed.

The Maritime Ex. Co.'s head office has been removed from Halifax to Kentville, N.S. W. Fraser continues as Manager, in addition to his new position as Assistant Superintendent of the Dominion Atlantic Ry.

The Dominion Ex. Co. has opened a route on the extension of the Great Northwest Central Ry. from Hamiota to Miniota, Man., 20 miles. Offices have been opened on the extension at Crandell, Miniota & Minitonas.

D. C. Jackson, heretofore Superintendent of the Alaska Pacific Express Co., with headquarters at Skagway, Alaska, has been transferred to Seattle, Wash., & in addition to his duties as Superintendent, will also have charge of the auditing work.

The Dominion Ex. Co. has opened the following routes:—C.P.R. Snowflake branch, between Wood Bay & Snowflake, Man., 16 miles; C.P.R. Waskada branch, between Deloraine & Waskada, Man., 18 miles; Vankleek Hill & Hawkesbury wagon route, between Vankleek Hill & Hawkesbury, Ont.

The Dominion Ex. Co. gives notice that from Jan. 1, 1900 the clause printed on the face of each money order of the A. & B. series, requiring them to be presented within 3 months after date of issue, is no longer in effect, & these orders are payable at any time after the ordinary conditions have been complied with, regardless of the date of issue.

The Dominion Ex. Co. gives notice that shipments of money in any amount for Joliette, Que., office must not be received, nor must any notes, drafts, or accounts for collection at that point be received. This does not, however, prohibit the acceptance of merchandise shipments with bills to be collected c.o.d. This notice is issued in consequence of the repeated robberies of the express office at Joliette.

W. S. Stout, General Manager of the Dominion Express Company, whose portrait appears on pg. 33, was born at Havana, Ill., in

1858. When he entered the express service he was but 13 years old, being employed by the railway agent at Havana, who was also telegraph & express agent, to carry messages, collect freight & express bills, &c. At the age of 18 he was appointed acting agent at Havana for the U.S. Ex. Co. until the regular appointment was made, & during the following year ran as messenger. In the fall of 1878

he was appointed clerk in the joint office of the American & U.S. Ex. Co. at Bloomington, Ill. In Aug., 1879, he accepted a position in St. Louis under L. A. Fuller, Superintendent of the Union & Kansas Pacific Express (now the Pacific Ex. Co.), being a month later appointed Cashier of the St. Louis office of this Co., as well as of the Ohio & Mississippi Express. The latter position he

filled until July, 1882, when he was appointed Superintendent of the Western Division of the Dominion Ex. Co., with headquarters at Winnipeg. In 1884 he was promoted to the superintendency of all the Co.'s lines. This was followed by his appointment as General Manager, with headquarters at Toronto, & recently he was elected to the Vice-Presidency of the Co.

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Trespassers Prosecuted.	

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Size 10 x 2½ inches. Oblong, oval ends, white ground, blue letters, lined & tipped, hollowed:

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Luggage Room.	Private.
Office.	No Admittance.
Refreshments.	No Road.
Exit.	Boarding House.
Fire Escape.	Private Board.
Lavatory.	Dressmaking.
Ladies.	Fresh to Day.
Women.	Teas Provided.
Gentlemen.	Please Shut the Gate.

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Perpendicular, square ends, size 12 x 3 inches, white ground, blue letters, lined & tipped, lettered perpendicularly, **Push, Pull**.

Oblong, square ends, size 12 x 3 inches, white ground, blue letters, lined and tipped, lettered horizontally, **Push, Pull**.

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RAILWAY FINANCE, MEETINGS, &c.

Buffalo & Lake Huron.—The report & accounts for the ½-year ended Dec. 31, 1899, show a credit balance, including the amount brought forward, & after providing for the interest on the 1st & 2nd mortgage bonds of £14,340, which will allow of the payment of a dividend of 5s. 3d. a share, leaving £555 to be carried forward. This time last year a similar dividend was paid, while £518 was carried over. The disputed ownership of £2,000 2nd mortgage bonds has, after considerable delay & trouble, been settled in favor of the Co., & the Co.'s actual investments have been increased by this amount, although the directors have thought it prudent to let the cost price remain the same. This line, which runs from International Bridge, Ont., to Goderich, 162 miles, is leased in perpetuity to the G.T.R. for £70,000 a year.

Calgary & Edmonton.—Net earnings for Jan., \$11,881.50, against \$7,694.79 in Jan., 1898.

Canadian Pacific.—The annual meeting will be held in Montreal, April 4.

Chicago & Grand Trunk.—Applications have been made to the London Stock Exchange Committee to allow the trustee's certificates of deposit for 6% 1st mortgage bonds to be quoted in the official list.

Dominion Atlantic.—The annual meeting will be held in London, Eng., Mar. 30.

East Richelieu Valley.—In reference to the report that this line had been acquired by the G.T.R., we were informed on Feb. 23, by a prominent official of the United Counties Ry., which is operating the E.R.V. Ry., that there was nothing whatever in the report. He added, "The consolidation of the different interests is progressing in the ordinary manner, & with reasonable despatch." (Feb., pg. 35.)

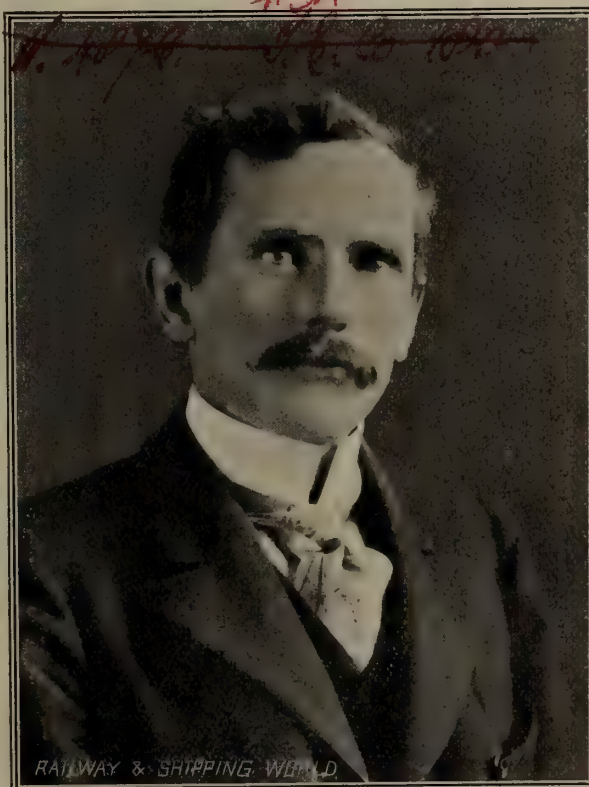
Grand Trunk.—The annual meeting will be held in London, Eng., April 5.

Great Eastern.—W. McNally, of Montreal, has taken action in the Superior Court against R. Prefontaine & the directors of the South Shore & Great Eastern Railways, & the Sheriff of Richelieu, as *mises-en-cause*, to annul the sale of the Great Eastern Ry. to Prefontaine, on the ground of alleged illegalities. The G.E.R. is a link of the Atlantic & Lake Superior Ry., & runs through a portion of Yamaska County, Que. It was recently purchased by Prefontaine at auction sale. McNally is a creditor of the road.

Manitoba & Northwestern.—A special general meeting of shareholders will be held in Winnipeg, April 5, to consider any offer or offers which may be received before that

time to lease the Co.'s railway of the company, & any other railway of which it may be the lessee, & if it be decided to lease or sub-lease the lines, to settle the period, & the terms & conditions. The M. & N. W. R. operates the Saskatchewan & Western under a lease. Both the M. & N. W. R., & the S. & W. R. will undoubtedly be leased to the C.P.R.

Montreal Incline Ry. Co.—As the contract of this Co. with the city of Montreal for the carrying of passengers to the mountain top, will expire on May 1 next, the purchase of the Co.'s property by the city is being discussed.



LAUCHLAN ALEXANDER HAMILTON,

Land Commissioner of the Canadian Pacific Railway.

The paid-up capital of the Co. is \$45,000 & the shareholders would probably be willing to sell out at this price, but the city authorities do not seem inclined to offer more than \$35,000.

Ottawa & New York.—Application is being made to the Ontario Legislature to legalize a by-law of the Ottawa City Council extending the time for compliance by this Co. with a by-law granting the Co. \$75,000 as a bonus.

Qu'Appelle, Long Lake & Saskatchewan.—Net earnings for Jan. \$978.47, against \$125.56 in Jan. 1899.

Quebec & Lake St. John.—Notice has been

given to holders of the £780,000 5% first mortgage bonds that the time in which the bonds will be received by the Railway Share Trust & Agency Co., London, has been extended to Mar. 15, after which all bonds deposited will be subject to a fine of ½%.

The net earnings for 1899 were \$42,919 more than for 1898.

Quebec Central.—Gross earnings for Jan. \$28,659.94, against \$27,205.43 in Jan., '99. Working expenses \$24,424.94 against \$22,352.21. Net earnings \$4,235.00 against \$4,853.22.

Port Arthur, Duluth & Western.—In the High Court of Justice at Toronto, Feb. 27, judgment was given in Dawson v. Port Arthur, Duluth & Western R. W. Co. Defendants, Toronto General Trust Co., appealed from certificate of Master in Ordinary. Action by plaintiffs, who are mortgagees, in trust, to secure payment of the bonds & debentures of the defendant the railway company, upon the mortgage for sale. The judgment is the ordinary judgment in such cases, with reference to the Master in Ordinary. Upon the issue of the appointment to settle advertisement, D. F. Burk, formerly Vice-President of the railway company, & not a party to the action, appeared & claimed to be beneficially entitled to certain of the bonds. The Master thereupon held that he had no jurisdiction to try the claim, & declined to make a report finding who are the holders of the bonds until the determination of an action which he directed Burk to bring to try his claim. The appellant holds the bonds, which are payable to bearer as security for advances made upon them for construction purposes. It was contended that the Master must report pursuant to the judgment who are the legal holders of the bonds subject to any equitable claim. Order made amending report by declaring appellant holders of the bonds subject to any claim to a portion of them of D. F. Burk. Appellant to pay into court to credit of this action any sum to which Burk may be found entitled in his action. Costs of appeal to abide result of his action unless otherwise ordered.

Toronto, Hamilton & Buffalo.—F. S. Upton, of Rochester, N.Y., has been appointed receiver to close up the Dominion Construction Co., the syndicate that built the T., H. & B. Ry. It is said the Co. has paid all its just debts, & that the receiver was appointed to wind up everything. J. N. Young, the promoter of the road, has, however, a claim against the Co. for \$4,000 salary & for much larger amount for money expended by him, & he is trying to prevent the payment of \$14,000, balance due on the bonus. (Nov., '99, pg. 321.)

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NEXT ANNUAL MEETING at Montreal, Oct. 17 & 18, 1900.

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Young, London, Ont.

NEXT ANNUAL MEETING at Hamilton, Ont., Oct. 10,
1900.

National Association Marine Engineers of Canada.

HONORARY PRESIDENT, O. P. St. John, Toronto;
PRES., A. J. Woodward, Toronto; 1st VICE-PRES., R.
Craig, Toronto; and VICE-PRES., E. Abbey, Toronto.

COUNCIL, W. Jannison, Windsor, Ont.; J. Payne, Col-
lingwood, Ont.; O. Flummerfelt, St. Catharines, Ont.;
J. Currie & S. T. Wilson, Toronto.

TREASURER, H. Brownley, Toronto; SECRETARY, S.
A. Mills, Toronto.

Track Supply Association.

PRESIDENT.—F. E. Came, Montreal.
FIRST VICE-PRESIDENT.—R. J. Davidson, Hillburn,
N.Y.
SECOND VICE-PRESIDENT.—W. H. Frisby, Three Riv-
ers, Mich.
HON. SECRETARY-TREASURER.—Acton Burrows, 33
Melinda Street, Toronto.
NEXT ANNUAL MEETING at Montreal, Oct. 16, 1900.

Grand Trunk Earnings, Expenses, &c.

The following statement of earnings sup-
plied from the Montreal office, includes the
G.T. of Canada, & the Detroit, Grand Haven
& Milwaukee Rys., the earnings of the
Chicago & G.T., which is in the hands of
receivers, being omitted:

	1900	1899	Increase	Decrease
Jan.	\$ 1,819,988	\$ 1,606,065	\$ 213,923	.....
Feb.	1,587,923	1,595,549	82,374	.....
	\$ 3,407,911	\$ 3,111,614	\$ 296,297	.....

The following figures are issued from the
London, Eng., office:

GRAND TRUNK RAILWAY.

Revenue statement for Jan., 1900:

	1900	1899	Increase	Decrease
Gross receipts....	£358,100	£315,400	£42,700	.....
Working expenses.	257,200	227,400	29,800	.....
Net profit.....	£100,900	£88,000	£12,900	.....

DETROIT, GRAND HAVEN AND MILWAUKEE RY.

Revenue statement for Jan., 1900:

	1900	1899	Increase	Decrease
Gross receipts....	£15,800	£14,600	£1,200	.....
Working expenses.	13,000	12,500	500	.....
Net profit....	£ 2,800	£ 2,100	£ 700	.....

TRAFFIC RECEIPTS OF THE SYSTEM.

Traffic receipts, Jan. 1 to Feb. 28:

	1900.	1899.	In- crease.	De- crease.
Grand Trunk....	£ 672,297	£ 613,033	£ 59,264	.....
D., G. H. & M. ..	27,957	26,339	1,618	.....
Total.....	£ 700,254	£ 639,372	£ 60,882	.....

C.P.R. Earnings & Expenses.

Gross earnings, working expenses, net prof-
its and increases over 1899, from Jan. 1, 1900:

	Earnings.	Expenses.	Net Profits.	Increase.
Jan.	\$2,152,071.32	\$1,460,501.71	\$ 691,569.61	\$ 74,035.75

Approximate earnings for Feb., \$1,953,000,
against \$1,752,000 in Feb., 1899; increase,
\$201,000.

SUBSIDIARY LINES.

DULUTH, SOUTH SHORE & ATLANTIC.—
The gross earnings for 1899 were \$2,407,437,
against \$1,821,807 in 1898; the operating ex-
penses were \$1,468,896, against \$1,224,045,
& the net earnings were \$938,541, against
\$597,761, the total income amounting to \$943,-
478. The fixed charges, interest, taxes, &c.,
were \$929,421, leaving a surplus of \$14,057,
against a deficit of \$298,191 in 1898. From
1892 up to & including 1898, the road had a
deficit, which the C.P.R. made good each
year. The growth in the net earnings for
the last three years is as follows:—1897,
\$546,998.74; 1898, \$603,179.71; 1899, \$943,-
000. For Jan., 1900, the gross earnings show
a further increase of \$15,000, equal to 10%,
which comes on top of an increase for Jan.,
1899, over the same period of the previous
year of \$38,000, or 33%.

Approximate earnings for Feb., \$187,799;
increase over Feb., 1899, \$52,972.

MINERAL RANGE, HANCOCK & CALUMET.—
Approximate earnings for Feb., \$33,410;
increase over Feb., 1899, \$9,631.

MINNEAPOLIS, ST. PAUL & SAULT STE.
MARIE.—Approximate earnings for Feb.,
\$328,436; increase over Feb., 1899, \$82,074.

Net earnings for 5 months to Nov. 30, 1899,
\$1,314,017 against \$1,020,473 for correspond-
ing period.

Pensions on the Grand Trunk.

H. S. writes from Montreal as follows:—In
view of the increasing interest being taken by
American railways in the formation of old
age pension funds, it may not be out of place
to describe briefly the superannuation fund
established on the G.T.R. in 1874. The fund
was incorporated by act of Parliament under
the title, "The G. T. Ry. of Canada Super-
annuation & Provident Fund Association." The
funds of the Association are invested in
the names of three trustees appointed by the
directors of the railway company, & the man-
agement is by a committee consisting of 3
men nominated by the directors, 7 principal
officers of the company, ex-officio, & 4 nom-
inees elected triennially by ballot among the
members of the Association. Membership is
compulsory upon all officers, agents, opera-
tors, & the clerical staff generally, receiving
a salary of \$400 or more, & being not over
37 years of age. The rate of contribution is
2½%, & the Co. supplements the contribu-
tions of employees by giving an equal amount
each half year.

Members have the privilege of retiring from
the service of the Co. at the minimum age of
55 years & receiving a pension for life, on the
basis of one-sixtieth of their retiring pay for
each year that they have been contributing to
the fund; but such allowance must not ex-
ceed two-thirds of the average annual salary
during the same period.

In the event of a member of over 10 years'
standing being permanently incapacitated by
physical or mental infirmity from performing
his duties, the Committee of Management
have the power, subject to the approval of the
President of the Co., to grant such an allow-
ance as in their discretion may seem advis-
able. Should a member leave the service at
any time after contributing for 10 years, he is
entitled to a refund of all his contributions. If
he leaves after contributing for less than 10
years & more than 5, he receives half his con-
tributions. In the event of his retiring from
the service before contributing for 5 years he
is not entitled to any refund, unless his ser-
vices have been dispensed with from causes
other than fraud, misconduct or dishonesty,
or his retirement is caused by ill health; in
either case he receives half his contributions.

Prior to 1898, members leaving the service
at any period after 5 years received only half
their contributions. This was considered a
hardship to the employee, & the rules were
amended to permit of a refund of their total
contributions to employees who had been con-
tributors for 10 years or over. Should a mem-
ber die, the whole amount of his contributions
is paid to his widow, or if he should leave no
widow, to his children or other relatives de-
pendent upon him.

The Superannuation Fund has now been in
operation for 25 years, & has emerged from
the experimental stage. The rules of the As-
sociation were based largely upon the experi-
ence of similar organizations on English rail-
ways, & it was a matter of conjecture to what
extent the different conditions of this country
would affect the calculations of the actuaries.
At present the fund is in a most satisfactory
condition. A number of members who other-
wise would have been penniless & a burden
on their relatives are receiving pensions which
enable them to spend the evening of their
lives in comparative ease & comfort. Many
others, again, are looking forward to the time
when they may take a well-earned rest from
their labors. Others less fortunate there are
who, when they had the option of joining the
fund at its inception, declined to do so, & now
regret their lack of foresight.

The advantages of the pension system are
more fully recognized among the railway com-
panies of America in proportion as competi-
tion & the struggle of life become keener.
This competition, coupled with the present

tendency of railways to consolidate for the purpose of more economical administration, must have the effect of reducing the opportunities to the average employe, of improving his position by changing from one service to another, & pensions therefore conduce to permanence of employment. Under such circumstances the advantages resulting to employes from the establishment of a pension fund are very great, & the prospective benefits should spur them to increased efforts in the faithful & efficient performance of their duties. At the same time the consideration that employes are approaching the superannuation age cannot rightfully have any influence upon the responsible officials when dealing with matters of discipline & efficiency.—*Railroad Gazette.*

A Passenger Fare Suit.

In the High Court of Justice at Toronto, Feb. 20, judgment was given in *Lees vs. Ottawa & New York Ry. Co.*, on appeal by defendant from judgment of junior Judge of County of Carleton. The action was to recover three times the amount claimed as damages under sec. 290 of the Railway Act for levying from plaintiff, an Ottawa lawyer, unlawfully, as alleged, tolls, rates, charges & moneys for defendant's services as a common carrier. The plaintiff travelled over the defendant's line running between the City of Ottawa & the Village of Russell, & paid the full rates required by the Co., & brought this action to compel defendant to make a reasonable rate between Ottawa & Russell. The plaintiff alleged that there is no by-law of the defendant fixing tolls for carriage of passengers between Ottawa & Cornwall which has been approved by the Governor in Council & published in the *Canada Gazette* in accordance with terms of sec. 227 of the Railway Act. The objections that the appeal had been set down before the expiration of 30 days from date of judgment, & that the proceedings had not been certified as required by the County Courts Act, were overruled on the argument. Held, without expressing any opinion on the effect of section 227, that it is plain that the theory upon which the action is brought cannot be supported. To give effect to it would be to hold that a company whose tariff has not been sanctioned by the Governor in Council must not carry on its business, & may not even make special contracts with travellers, & that if it does so, & they & their goods are carried, & a reasonable charge paid, the traveller may recover it back. There is no warrant for this in any provision of the act. Nor is plaintiff entitled to recover under section 290. The fares not being unreasonable nor excessive, it follows that they are neither unjust nor extortionate. Appeal allowed with costs & action dismissed with costs.

Corporation Taxation.—Under the revenue act passed by the Ontario Legislature in 1899, corporations paid into the Provincial Treasury during the year \$207,059, among the amounts being the following:—

Railway companies	\$32,944
Street railway companies	7,063
Express companies	2,725
Sleeping & parlor car companies	583
Telegraph companies	1,512
Bell Telephone Company	4,445

The N.L. Piper Railway Supply Co. Ltd.—Notice is given that application will be made for the incorporation by Dominion letters patent of a company under this name, to carry on the business of manufacturing & dealing in railway, ship & electric supplies, & to acquire from the old & favorably known firm of Noah L. Piper & Son, of Toronto, the business now carried on under that name. The chief place of business of the Co. is to be Toronto & the capital \$50,000. The principal applicants are E. S. Piper & H. Piper, & it is not proposed to take in any outside capital.

C.P.R. ANNUAL REPORT.

The 19th annual report for the year ended Dec. 31, 1899, dated Feb. 27, 1900, & signed by President Shaughnessy, has been addressed to the shareholders as follows:

A balance sheet of the affairs of the Co. at Dec. 31, 1899, together with the usual statements & schedules are herewith submitted.

The gross earnings for the year were.....\$29,230,038.26
The working expenses were.....16,999,872.77

And the net earnings were.....12,230,165.49

Add interest earned on deposits
& loans & income from other
sources including profits from
special steamship charters.....\$ 333,978.57

Add interest due
from Duluth,
South Shore &
Atlantic Ry. Co.
on consolidated
bonds held by
your Co. against
debenture stock
issued.....\$604,280.00
Less advanced by
your Co.....272,780.00
331,500.00

Add interest from
Minneapolis, St.
Paul & Sault Ste.
Marie Ry. Co. on
bonds held by
your Co. against
debenture stock
issued.....159,720.00

Add amount repaid
by M., St. P. &
S. M. Ry. Co.
on account
interest advanced
previous to 1895.....325,000.00
1,150,198.57

Deduct fixed charges accrued during the
year, including interest on land bonds.....\$6,816,676.36

The surplus for the year was.....\$6,563,687.70
Deduct amount applied against cost
of steamships.....155,000.00
\$6,408,687.70

From this there has been charged
off the ½ yearly dividend
on preference stock 2% paid
Oct. 1, 1899.....\$419,020.00
And ½ yearly dividend on
ordinary stock; 2% paid Oct.
1, 1899.....1,300,000.00
\$1,719,020.00

Leaving balance.....\$4,689,667.70

From this there has been declared
a 2nd ½ yearly dividend
on preference stock of 2%
payable April 1, 1900.....\$535,820.00
And a further dividend of 3% on
common stock payable April
1, 1900 (making 5% for the
year).....1,950,000.00

The working expenses for the year amounted to 58.16% of the gross earnings, & the net earnings to 41.84%, as compared with 59.92 & 40.08% respectively in 1898.

The earnings per passenger per mile were 1.79c, & per ton of freight per mile 0.74c, as against 1.52 & 0.76c respectively in 1898.

During the year, 274 miles of the main line were relaid with steel rails weighing 73 & 80 lbs. a yard, & the policy was continued of improving the railway & its facilities with a view to most economical operation.

To meet the requirements of the traffic, a greater number of cars & locomotives had to be provided than was anticipated a year ago, involving an expenditure of \$1,070,315.36 in excess of the appropriation made at the last annual meeting. You will be asked to approve the action of your directors by sanctioning this expenditure.

The Columbia & Western Ry., from Robson to the Boundary Creek district, has been completed, & there is every evidence that it will add largely to the tonnage & revenue of your railway system.

Branch lines from Deloraine to Waskada, 18 miles, & from La Riviere to Snowflake, 16 miles were built in Manitoba for the purpose of reaching important settlements; an extension of the Pipestone Branch, 50 miles westward from its present terminus, was commenced, to provide railway facilities for the

productive country in the Moose Mountain district; a branch line, 26 miles, from McGregor in the direction of Varcoe, was partially constructed to protect valuable territory, & work was commenced on another branch line, 24 miles, from Molson to Lac du Bonnet, in order to reach the timber district tributary to English River.

The work of double-tracking the line between Montreal & Toronto was commenced, & 17 miles of the busiest section were completed.

An arrangement was made with the Arrowhead & Kootenay Ry. Co. to build a portion of its line, 35 miles in length, in order to comply with the terms of its charter, & to serve the Trout Lake mining district in B.C. The arrangement contemplates a lease to your Co. of the line on the basis of its actual cost.

During the year 4% consolidated debenture stock to the amount of £960,000, was created & sold for the purpose of acquiring the bonds of the Columbia & Western Ry. Co. The bonds are now in the Co.'s treasury amongst acquired securities held against debenture stock issued.

Four % preference stock to the amount of £1,200,000, was created & sold for the purpose of meeting expenditures for rolling stock, additions & improvements, authorized by the shareholders.

The 1st mortgage 5% Canada Central bonds that matured Oct. 1, amounting to £187,400, were retired by an issue of 4% consolidated debenture stock.

The land grant bonds to the amount of \$1,000,000 held by the Dominion Government as security for certain works to be performed, have been surrendered & destroyed. Under the terms of the mortgage, land grant bonds to the face value of \$250,000 were called for redemption from the proceeds of land sales, & of these \$155,000 had been redeemed & cancelled at the end of the year. A further amount will be called shortly.

The net proceeds of town site sales, as shown in the balance sheet for 1898, viz., \$1,363,224.69, have been transferred in reduction of the cost of the Co.'s property, & especially allotted to the ocean, lake & river steamships, & there has been applied, in further reduction of the same item, a portion of the profit resulting from the operation of the Pacific steamers during the year, amounting to \$155,000.

Pursuant to the authority given at the last annual meeting, your Co. guaranteed interest on \$3,500,000 second mortgage bonds of the Minneapolis, St. Paul & Sault Ste. Marie Ry. Co., the proceeds of which were devoted to the payment of maturing interest bearing securities, the purchase of rolling stock, the repayment of capital advanced by your Co., & the other purposes specified in the resolution. The balance unexpended at the end of the year amounting to \$1,359,629.12 is deposited in trust with your Co. The advances made by your Co. in previous years for the payment of interest on the M., S.P. & S.S.M. Ry. Co.'s bonds are being carried as a deferred liability of that Co. to be repaid in instalments as its earnings may warrant. The net earnings of the M., S.P. & S.S.M. Ry. Co. for the year were \$2,243,883.11, out of which were paid interest & charges amounting to \$1,618,226.73, leaving a surplus of \$625,656.38. From this surplus that Co. repaid \$325,000, of the amount advanced by your Co. previous to 1895 to meet interest on its bonds for which your Co. is responsible as guarantor. As the payments when made were charged against your revenue, the amount received has been credited to the same account.

The net earnings of the Duluth, South Shore & Atlantic Ry. Co. for the year were \$943,478.53, or about \$14,000 more than all fixed charges. Notwithstanding the necessity for meeting all capital expenditures out of revenue that Co. was able to pay towards interest on

ENAMELED IRON TELEPHONE SIGNS.

Guaranteed Not to Fade or in any way to Perish from Exposure.



No. 1. Single, 17 x 18 inches. If made double with flange 18 1/2 x 18 inches.



No. 4. Double, 18 1/2 x 18 inches, including flange. If made single, without flange, 17 x 18 inches.



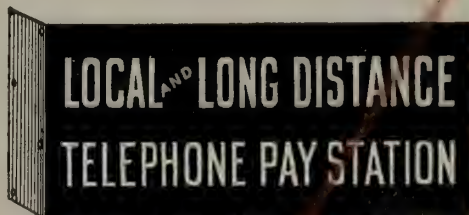
No. 2. Single, 17 x 18 inches. If made double, with flange, 18 1/2 x 18 inches.



No. 5. Double, 19 1/2 x 8 inches, including flange. If made single, without flange, 18 x 8 inches.



No. 6. Double, 19 1/2 x 8 inches, including flange.



No. 7. Double, 19 1/2 x 8 inches, including flange. If made single, without flange, 18 x 8 inches.



No. 3. Single, 6 1/2 x 7 inches.



No. 8. Single, 18 x 8 inches.

These signs can be made in any colors. Blue and white are the most effective and are generally preferred.

Signs with any other design or lettering made to order.

PRICES ON ANY QUANTITIES FURNISHED ON APPLICATION.

The ACTON BURROWS COMPANY, 29 Melinda Street, TORONTO.

Sole Agents for Canada for the Imperial Enamel Co., Birmingham, England.

its bonds held by your Co. \$122,500, in excess of the previous year.

The growth of your Co.'s business requires an enlargement of the facilities at Winnipeg that cannot longer be delayed. In connection with a new passenger station it is proposed to provide hotel accommodation for the travelling public. During the past year nearly all of the land necessary for these improvements was acquired, but it is estimated that the buildings & other works will require an expenditure of \$750,000, within the next two years. The addition to Windsor St. station, Montreal, commenced during the past year, was delayed because of the difficulty in getting building material, so that the greater part of the work had to be carried over. You will be asked to authorize expenditure during the current year at Montreal & Winnipeg in connection with these works to the extent of \$750,000; also expenditures for permanent wharves & other terminal works at Vancouver, \$98,817; for improvements to permanent way, \$978,744; for increased yard & other facilities at various points on the system, \$461,928, & for additional rolling stock, \$975,000.

You will be asked to approve a lease by your Co. of the Manitoba & North-Western Ry. Co.'s main line & branches, 253 miles in all, & a lease of the Great North-West Central Ry., extending from your main line near Brandon, Man., north-westerly for 50 miles, with an extension of 20 miles now in course of construction. Both of these lines are important contributors of traffic to your system, & therefore, you could not afford to have them fall into other hands. The terms of the proposed leases, which your directors consider quite advantageous to your Co., are set out in the resolutions that will be submitted for your approval.

The governments, to whom your Co. must, in accordance with law, make full reports of its annual business, require those reports to be made to June 30 each year, & most of the important railway companies on this continent close their fiscal year at the same time; therefore, for the sake of convenience in the preparation of reports, & to simplify the comparison of your operations with those of other large railway systems similarly situated, & for the further advantage of having your largest net revenue result from the earnings of the 1st half rather than the 2nd half of the fiscal year, your directors are of opinion that the annual report & the accounts relating to the operations of your Co. should hereafter be made up to June 30, instead of December 31, & the date of the annual meeting be changed from the 1st Wednesday in April to the 1st Wednesday in Oct. each year. You will be asked to approve a by-law making this arrangement effective. A statement will be issued in Oct. next of the accounts to June 30, 1900, & thereafter the accounts will be submitted at the annual meeting in Oct., covering the fiscal year ending June 30 in the usual way.

The land sales for the past year were 416,806 acres, for \$1,327,667, against 348,608 acres, for \$1,121,774 in 1898.

The growth of your gross earnings from \$18,941,000 in 1895 to \$29,230,000 in 1899, notwithstanding the important reductions made during that period in the rates for the carriage of freight in the territory west of Lake Superior, is evidence of the marvellous progress & development taking place in Canada, & which from all present indications are likely to be maintained.

CONDENSED BALANCE SHEET, DEC. 31, 1899.

Cost of railway and equipment.....	\$218,407,334.21
Ocean, lake & river steamships.....	\$5,838,385.87
Less amount applied in reduction of cost as explained in report.....	1,518,224.69
Acquired securities held against debenture stock issued.....	30,650,875.01
	4,320,161.18

Other acquired securities.....	2,192,161.94
Real estate, hotels and buildings held by trustees for the Co.....	1,194,597.27
Balances due on lands sold, deferred payments.....	2,372,487.18
Balances due on town-sites, deferred payments.....	201,790.27
Advances.....	
To Montreal & Atlantic Ry. secured by \$500,000 1st mortgage bonds.....	424,144.80
To Duluth, South Shore & Atlantic Ry. car trusts, etc.....	236,213.19
Material and supplies on hand.....	2,600,035.46
Station & traffic balances & accounts receivable.....	4,409,003.17
Miscellaneous securities & advances.....	1,272,477.44
Imperial & Dominion governments, amounts due for mail transportation (since paid).....	232,746.34
Cash in hand, including amount held in trust for M., St. P. & S. S. M. Ry.....	10,904,247.38
	\$279,418,274.84

In addition to above assets the Co. owns 16,758,049 acres of land & will receive through the B.C. Southern Ry. about 3,350,000 acres.	
Capital stock.....	\$65,000,000.00
Four % preference stock.....	26,791,000.00
Four % consolidated debenture stock.....	54,237,082.53
Mortgage bonds.....	
1st mortgage, bonds 5 %.....	\$27,191,500
Canada Central mortgage, 6 %.....	973,333.33
Due Province of Quebec on Q.M.O. & O. North Shore Rys., at 4 1/2 %.....	7,000,000.00
Algoma Branch, 1st mortgage, 5 %.....	3,650,000.00
North Shore Ry., 1st mortgage, 5 %.....	616,119.67
	47,238,086.33

Land grant bonds, 1st mortgage, amt of issue... \$25,000,000.00	
Less amount redeemed or surrendered & cancelled... 21,740,500.00	
	3,259,500.00
3 1/2 % bonds, interest guaranteed by Dominion Government.....	15,000,000.00
	18,259,500.00

Current liabilities, Interest on funded debt & rental of leased lines, coupons due Jan. 1, 1900, & including coupons overdue not presented... 1,476,221.02	
Accrued to date, not due... 327,102.24	
	1,803,323.26

Cash subsidies from Dominion & Provincial governments & municipalities.....	29,551,218.07
Land grant, net proceeds of sales of land.....	20,960,250.74
Amount held in trust for M., S. P. & S. S. M. Ry. Co.....	1,359,629.12
Surplus earnings account.....	9,614,528.32
	\$279,418,274.84

FIXED CHARGES 1899.

1st mortgage bonds 5 %.....	\$1,749,931.66
Province of Quebec 4 1/2 %.....	283,500.00
North Shore 1st mortgage 5 %.....	267.66
Canada Central 2nd mortgage 6 %.....	58,400.00
1st sinking fund.....	34,066.65
St. Lawrence & Ottawa 4 %.....	38,933.34
Man. S. W. Col. Ry. 1st mortgage 5 %.....	127,200.00
Toronto, Grey & Bruce rental.....	140,000.00
Ontario & Quebec debentures 5 %.....	975,129.56
Ontario & Quebec (ordinary) 6 %.....	120,000.00
Atlantic & North West Ry. 1st mortgage, less Government proportion.....	136,333.34
Algoma branch 5 %.....	182,500.00
Rental, Farnham to Brigham Jct.....	1,400.00
Rental, Mattawamkeag to Vanceboro.....	23,800.00
Rental New Brunswick Ry. System.....	372,829.74
Rental of terminals at Toronto.....	34,860.10
Rental of terminals at Hamilton.....	33,537.49
Rental Hamilton Jct. to Toronto.....	40,000.00
Rental St. Stephen & Milltown Ry.....	2,050.00
Interest on Montreal & Western Ry. purchase.....	21,409.36
Interest on equipment leases.....	67,536.63
4 % debenture stock.....	
Issue for general purposes, £3,933,748	
Issue for China & Japan steamers.....	720,000
Issue for Souris branch.....	1,004,000
	£5,657,748
Issue for acquiring mortgage bonds of roads of which principal interest	\$1,101,374.95

is guaranteed by C.P.R.:—
1 year on £4,276,858
6 mos. on 960,000
To retire Canada Central 1st mortgage bonds, 3 months on..... 250,000

5,486,858
£11,144,606 938,168.34 2,039,543.29

Interest on land grant bonds £266,684.72, less interest on deferred payments on land sales & proceeds of town sites not covered by mortgage..... 363,237.18 333,447.54
\$6,816,676.36

CONSTRUCTION—ACQUIRED AND BRANCH LINES.

Following are the amounts spent on construction during 1899:

Souris branch—Pipstone extension.....	\$214,543 45
Snowflake branch.....	123,789 33
McGregor branch.....	37,576 08
Lac du Bonnet branch.....	12,030 86
Waskada branch.....	142,896 69
North Star branch.....	161,934 08
Lake Temiscamingue Colonization Ry.....	958 60
Surveys projected lines.....	19,111 25
Crow's Nest Pass & B. C. Southern Ry.....	1,434,979 94

	\$2,147,820 30
Less:—Stonewall branch extension.... Cr.	4,539 44

Total..... \$2,143,289 86

EXPENDITURE ON ADDITIONS AND IMPROVEMENTS DURING 1899.

Main line, Quebec to Bonfield.....	\$123,401 81
" Bonfield to Fort William.....	171,175 27
" Fort William to Laggan.....	679,643 04
" Laggan to Pacific Coast.....	654,500 76
" Montreal terminals.....	168,000 60
Branch lines, Manitoba & B.C.....	36,386 73
Algoma branch.....	42,926 26
Telegraph extensions and additions.....	24,179 18
	\$1,900,213 65

EXPENDITURE ON LEASED AND ACQUIRED LINES DURING 1899.

Ontario & Quebec Ry. \$447,265.59, less sales & real estate, Montreal & Toronto \$43,226.76.....	\$404,038 83
Atlantic & N. W. Ry.....	103,050 22
Montreal & Western Ry.....	11,532 13
Manitoba S. W. Col. Ry.....	29,969 73
New Brunswick Ry.....	126,551 45
Columbia & Kootenay Ry.....	7,961 52
	\$683,103 87

RECEIPTS AND EXPENDITURES 1899.

RECEIPTS.

Cash in hand, Dec. 31, 1898.....	\$4,147,228 80
Surplus revenue, as per statement.....	6,563,687 70
Land Department.....	
Net proceeds of sales.....	\$1,203,698 02
Less amounts remaining in deferred payments.....	1,044,410 76
	159,287 26
Collection of deferred payments of previous years on lands & town sites.....	241,320 99
	400,608 25

Bonuses, Dominion Government, subsidy on Crow's Nest Pass extension.....	\$340,060 00
Provincial Government, subsidy on Stonewall & Souris Branch extensions.....	59,780 00
Town of Calgary, improvements at that place.....	25,000 00
	424,840 00
Sale of Aymler Branch.....	100,000 00

B. C. lake & river steamships—sale of steamboat, less amounts expended in completion of additional steamboats.....	1,620 95
Received from M. S. P. & S. S. M. Ry. Co. in payment of advances on car Trusts, etc.....	467,817 89
Advances repaid by Columbia & Western Ry. from proceeds of bonds.....	2,320,470 16
M. S. P. & S. S. M. Ry., income certificates paid.....	270,000 00
Consolidated Debenture stock, Amount realized from issue of £1,268,880 for acquiring guaranteed securities & for paying balance due on Canada Central Ry. 1st mortgage bonds.....	6,662,028 18
Four per cent. preference stock, Realized from issue of £1,200,000 sold to meet capital expenditure.....	5,502,566 15

Received in trust for M. S. P. & S. S. M. Ry. from proceeds and mortgage bonds	1,359,629 12
	\$28,220,497 20
Deduct increase in accounts receivable.	
Stations and traffic balances and accounts receivable.	4,409,003 17
Miscellaneous securities & advances.	1,272,477 44
Due from Imperial & Dominion Governments.	232,746 34

Less amounts to Dec. 31, 1898.	\$5,823,844 87
Deduct M. S. P. & S. S. M. Ry. income certificates reported in receipts.	270,000 00
	\$5,553,844 87
	\$26,382 08
	\$27,860,115 12

EXPENDITURES.	
Dividends on preference stock.	
2% paid April 1, 1899 & 2% paid Oct. 1, 1899	\$656,182 50
Dividends on ordinary stock.	
2% paid April 1, 1899, & 2% paid Oct. 1, 1899	2,600,000 00
Real estate, hotels & buildings held by trustees.	27,090 56
Construction acquired & branch lines.	2,143,289 86
Additions & improvements main line & branches.	1,900,213 65
Additions & improvements leased lines.	683,103 87
Rolling stock, shops & machinery.	2,434,652 38
Canada Central Ry. 1st mortgage bonds, amount paid to retire outstanding bonds.	922,889 41
Land grant bonds, amount paid in redemption of \$155,000 bonds.	170,500 00
Guaranteed Securities acquired by sale of 4% debenture stock.	
M. S. P. & S. S. M. Ry. 4% consolidated bonds, \$314,000	\$282,193 24
Columbia & Western Ry., 5% 1st mortgage bonds, \$5,477,500, amount paid on account.	5,067,828 62
	5,350,021 86
Increase in material & stores on hand.	58,625 34
Decrease in current liabilities.	9,298 31
	\$16,955,867 74
Cash in hand, Dec. 31, 1899.	10,904,247 38
	\$27,860,115 12

EARNINGS FOR THE YEAR 1899.

From passengers.	\$7,098,096 70
" freight.	18,738,884 96
" mails.	618,385 19
" express.	663,960 52
" parlor & sleeping cars.	441,647 54
" telegraph, grain elevators, & miscellaneous, including profit on Pacific steamships.	1,669,063 35

\$29,230,038 26

WORKING EXPENSES FOR THE YEAR 1899.

Conducting transportation.	\$4,256,097 31
Maintenance of way & structures.	3,488,253 73
Motive power.	5,286,871 50
Maintenance of cars.	1,295,282 03
Parlor & sleeping car expenses.	85,582 18
Expenses of lake & river steamers.	417,045 72
General expenses.	1,680,932 66
Commercial telegraph.	489,807 64

\$16,999,872 77

DESCRIPTION OF FREIGHT CARRIED.

Description.	1897.	1898.	1899.
Flour..... Brls..	2,911,072	3,292,450	4,005,226
Grain..... Bush.	37,756,201	37,443,084	42,763,253
Live stock.... Head.	663,773	715,018	810,559
Lumber..... Feet.	831,895,383	840,145,338	957,702,349
Firewood..... Cords	185,208	203,336	202,461
Manufactured articles... Tons.	1,310,827	1,529,044	1,795,663
All other articles..... Tons.	994,813	1,119,087	1,461,144

FREIGHT TRAFFIC.

	1897.	1898.	1899.
Tons carried.....	5,174,484	5,582,038	6,620,903
Tons carried 1 mile	1,955,911,006	2,142,319,887	2,539,171,900
Earnings per ton per mile.....	0.78c.	0.76c.	0.74c.

PASSENGER TRAFFIC.

	1897.	1898.	1899.
Passengers carried.	3,179,589	3,674,502	3,818,857
Passengers carried 1 mile.....	317,997,951	430,493,139	397,411,745
Earnings per passenger per mile.....	1.82c.	1.52c.	1.79c.

TRAFFIC TRAIN EARNINGS, 1899.

	Mileage.	Earnings.	Earnings per traffic train mile.
Passenger.	7,441,828	\$ 8,563,341.94	\$ 1.15
Freight....	10,982,873	18,266,288.06	1.66
Total....	18,424,701	\$26,829,630.00	\$ 1.46

The above earnings of traffic trains include earnings from mails, express and sleeping cars, but do not include ocean, lake & river steamers, telegraph, elevators, rents, &c., the net earnings from which amounted to \$1,493,554.90.

EXPENSES PER TRAFFIC TRAIN MILE, 1899.

	Expenses.	Expenses per Traffic Train Mile.
Maintenance of way & structures.	\$ 3,488,253.73	0.189
Motive power.	5,286,871.50	0.287
Maintenance of cars.	1,295,282.03	0.070
Traffic & general expenses.	6,022,612.15	0.327
	\$ 16,093,019.41	0.873

MILEAGE OF THE COMPANY'S LINES.

Atlantic division.	689.2
Ontario & Quebec division.	1,259.2
Eastern division.	1,785.0
Western division.	3,359.9
Pacific division.	889.6

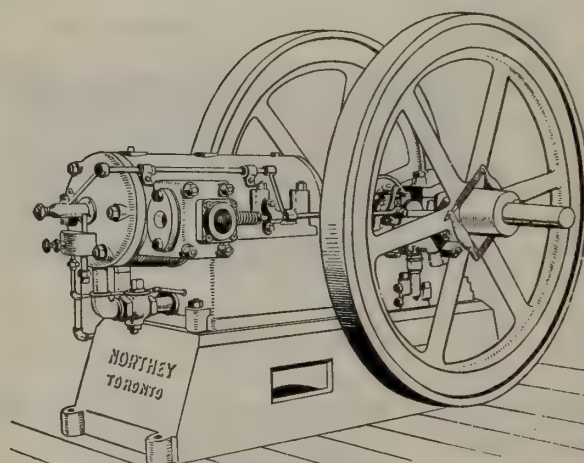
Lines controlled.	7,082.9
M. S. P. & S. S. M.	1,245.0
Duluth, S. S. & A.	589.0

9,816.9

Of the 7,982.9 miles mentioned above, 7,006.6 are included in the C.P.R. traffic returns, 732.4 are other lines worked & 249.9 are under construction, including the Columbia & Western, which, although practically completed, was not in operation at the end of 1899.

The Northey Gas or Gasoline Engine.

In Connection with Pumping Machinery for Tank Duty.



"BUILT FOR HARD WORK."

Railway Officials will find the Northey Engine to be a marked improvement over steam or other forms of power for this duty. It is simple of construction, and easily managed, necessitating only the turn of a fly-wheel to start, while it can be going at full speed in a few seconds and be shut down on the instant. Needs no engineer to look after it, the station hands can do all that is required, while it will run for hours at a time with little or no attention. The Engine is compactly built and of the best materials; it uses either gas or gasoline for fuel, and its safety and economy with either have proved it to be the most satisfactory power in the market.

We will cheerfully send Booklet and every information upon request.

The Northey Mfg. Co., Limited, ¹⁰³²KING ST. SUBWAY, Toronto, Ont.

C.P.R. Betterments, Construction, Etc.

Expenditures for 1899 & 1900.—Last year the Co. expended \$2,143,289.86 in surveys & construction of branch lines, details of which are given on pg. 69. This does not include the expenditure on the construction of the Columbia & Western Ry. between West Robson & Trail. On additions & improvements of the main line & branches \$1,900,213.65 were expended, & on additions & improvements on leased & acquired lines \$683,103.87. At the annual meeting, to be held April 4, the shareholders will be asked to authorize the following expenditures to be made this year: Station & hotel at Winnipeg & addition to Windsor st. station, Montreal, \$750,000; permanent wharves & other terminal work at Vancouver, \$98,817; improvements to permanent way, \$978,744; increased yard & other facilities, \$461,928.

Atlantic Division.—The following improvements have been decided on for this year. The yard at McAdam Jct. is to be re-arranged & increased, & a very handsome stone passenger station is to be built there, which will contain a dining hall & lunch counter, offices for the Superintendent & divisional staff, & a number of sleeping rooms for passengers who may require to stay over night there. The wooden truss bridge over the Chaudiere River at Megantic is to be replaced by a masonry & steel structure. A new passenger & freight station is to be provided at Holeb, Me. Several wooden bridges are to be replaced by permanent work, & considerable ditching, ballasting & fencing is to be done, & business tracks are to be provided at a number of points to relieve the passing sidings.

Montreal to Toronto Double Track.—It is not the intention to continue the work of double tracking the line this year west of St. Annes, to which point it was laid last year. (Feb., pg. 39.)

Toronto Terminals.—Notice is given that it is the intention of the Toronto, Grey & Bruce Ry. Co., whose line is leased to the C.P.R., to apply to the Railway Committee of the Privy Council to sanction the building & use of a branch line from a point on the T.G. & B. Ry., near the Queen's wharf, Toronto, to the south limit of Fraser Ave., Toronto.

The Point Fortune Branch leaves the Montreal-Ottawa short line at Rigaud, Que., running to Point Fortune, 7 miles. A deputation of residents of the northern portion of Prescott county recently waited on the Dominion Government, asking for a subsidy to be given to the Co. to extend the branch 12 miles to Hawkesbury, & it was also suggested that a further extension might be made to again join the Montreal-Ottawa line at Caledonia Springs, so as to also give railway facilities to L'Orignal.

Ottawa Connecting Line.—The route to be taken across the city, to connect the Co.'s present Union station near the Chaudiere Falls with the Central station near the canal basin & the Russel House, is still undecided. The surveys have been completed, & it is said that the latest proposal of the Co. is to use the Isabella st. route, which would place its tracks alongside the Canada Atlantic. (Feb., pg. 39.)

Pipestone Branch Extension.—When work was closed down for the winter, grading had been completed to 23.24 miles west of Antler, & track had been laid to 14.07 miles west of Antler. (Jan., pg. 7.)

The North Star Mine Branch, which leaves the Crow's Nest Pass Ry., a mile east of Cranbrook station, running 19.05 miles to the vicinity of the North Star & Sullivan group of mines, near Kimberley, has been completed. The first shipment of ore from the North Star mine was made over the branch on Feb. 22 & regular shipments are now going on. It

is reported that this branch may be extended to Windermere & up the Columbia river to Golden, but no official announcement has been made in regard to this. (Jan., pg. 7.)

Crow's Nest Pass Ry.—A contract has been let to J. W. Stewart for the construction of another section of this line, from Procter's Creek on the south side of the west arm of Kootenay Lake, to Five Mile Point near Nelson. The contract includes the whole construction of the line, grading, track laying, ballasting etc. The grading will be only moderately heavy, a portion of it being rock & the rest rock & gravel. The bridging will be very light. There will be only one bridge of any size. Mr. Stewart has already established his camps & will start work at once. It is expected to have the section in operation by the end of next summer. It has not yet been decided what will be done in regard to the line west of Five Mile Point. The C.P.R. track already extends from Nelson to within about a mile of Five Mile Point, & it appears to be probable that arrangements will be made to run over the Nelson & Fort Sheppard track for the intervening distance. (Jan., pg. 7.)

Columbia & Western Ry.—The extension of this line from West Robson to Midway was taken over from the contractors Mar. 5. (Feb., pg. 39.)

The station names on this line are to be put up in enameled iron plates, similar to those used on the Crow's Nest Pass Ry., instead of painted wooden signs. The order for them has been placed with the Acton Burrows Co., Toronto.

It is said that the Co. will shortly begin the completion of a bridge across the north fork of the Kettle River, in connection with the spur to the smelter.

Vancouver Terminals.—The Vancouver despatch referred to in our last issue stating that a contractor had arrived there to commence work on the addition to the Hotel Vancouver was probably incorrect. As far as we can ascertain no appropriation has been made for this purpose, but it is said the question of extending the building is under consideration. Plans were prepared last year, but these appear to have been considered too extensive, & it is understood that a modified scheme is now being worked out. (Feb., pg. 40.)

Mineral Range Ry.—The extension of this line from Newton, Mich., southwest via Laird & Mass City to Lake Gogebic, will be 62 miles long. The line has been surveyed from Newton to Mass City, 35 miles, & is under survey from Mass City to Lake Gogebic, 27 miles. Grading has been completed from Newton to the Sturgeon river, 8 miles, & work is in progress from the Fire Steel River to Mass City, 6 miles. The 35 miles from Newton to Mass City are under contract to Balch & Peppard, of Minneapolis, Minn., & contracts are yet to be let for the 27 miles from Mass City to Lake Gogebic. Maximum grades, 1%; maximum curves, 4°; weight of rail, 60 lbs.

Grand Trunk Betterments, Etc.

It is said that building operations on the new general offices in Montreal, which have been suspended for some months, will not be resumed for some time owing to the difficulty experienced in obtaining iron & steel. The contractors have ordered a supply of material from Belgium, but it is uncertain when it will arrive, & nothing can be done till it comes. (Jan., pg. 6.)

The erection of an improved passenger station at Aurora has been commenced.

In reference to the rumor that the Co. intends erecting large freight sheds at Midland, Ont., for the handling of package freight, we were informed, on Feb. 23, that orders had not been issued for the erection of such a

building, & that there was nothing in the report referred to, at least for the present.

On the middle division last year the Co. expended about \$550,000 on improvements. This included the laying of new rails, new yards at York, Berlin, Palmerston, Niagara Falls & London, new round house, shop, office & very complete coal chutes at Sarnia tunnel, & new bridges & buildings, among them being freight sheds at Woodstock, Hamilton, Beamsville, Jordan, & the extension at Simcoe street, Toronto, & new stations at Galt, Bright & Brussels. This year about \$800,000 will be expended on improvements on the same division. It is said these will include a new station for Queen street east, coal chutes, new turn-tables, double tracks between Niagara Falls & Hamilton, Hamilton & London, & London & Sarnia.

In connection with the differences between the city of Hamilton & the Co. as to bridges, etc., the city engineer & solicitor have been instructed to take steps to compel the Co. to renew the bridge on the heights, construct a bridge over Strachan st., & open up Ferguson avenue across the main line.

The Engineering Dept. is surveying a line that was located several years ago, from Lynden, Ont., 15.61 miles west of Hamilton, & 3.24 miles east of Harrisburg, to Green's Bridge, near Brantford, the idea being to build a cut-off so as to run the main line passenger trains between Hamilton & London via Brantford. We are informed that nothing definite has as yet been determined in regard to the matter.

Arrangements have been made for the renewal of the superstructure of the bridge across the Niagara River at Buffalo, commonly known as the International Bridge, & the property of the International Bridge Co. The bridge consists of two distinct & independent structures. One of these is the bridge across the Niagara River proper; the other is that across Black Rock Harbor. The bridge across the river consists of 8 spans, & has a total length of 1967 ft. Two openings are bridged by the arms of the draw girder, which has a total length of 362 ft. The length of the bridge across Black Rock Harbor is 517 ft. The draw span of this bridge has a clear opening of 107 ft. This work is being carried out in order to bring the bridge fully up to the requirements of modern rolling stock & loads, which are considerably more than double of what they were in 1870, when the erection of the existing structure was begun. It is expected that the work will be completed during the current year. (July, '99, pg. 207.)

The 30-stall brick roundhouse at Port Huron, Mich., which was recently completed, is now in use. Each stall has a pit 50 ft. long, with brick sides & concrete bottom, heated with coils of 1-in. steam pipes the full length of the pits. It is a little over 76 ft. from the doors across the house to the other outside wall, so the longest engines can be housed & have plenty of room to get around them. The big St. Clair tunnel engines are housed & cared for here. Two lines of 2-in. pipe pass entirely around the house next the roof, one for live steam, the other for compressed air, with pipes down the posts between every two pits. Two lines of 4-in. water pipe also pass clear around the house overhead, one for hot water for washing out & filling up, the other for cold water. A pressure of 100 lbs. is maintained steadily in these pipes. Drop pipes, 2½ ins. in diameter, lead down to the wash-out hydrants. In the side of each pit there is a pipe connection, which the blow-off cock can be coupled to, the water from the boilers is blown out into a hot water receiver or underground tank of very large size. This hot water is used for washing out boilers, being handled by one side of a large duplex pump; cold water is handled by the other side of the pump. Two tubular boilers, 5 ft. in diam. by 16 ft. long, furnish steam for the entire plant

at 125 lbs. per inch. The dynamo & air compressor are in the boiler house. The entire plant is lit with incandescent lights. The copper wires for the electric lights are encased in a $\frac{3}{4}$ -in. pipe all over the engine house. The foreman's office, storeroom & enginemen's waiting room are in a separate building, 75 x 22 ft. When the engines come from their trains they come by the coal chute, which has 32 pockets, take coal, then get sand from an overhead bin, then to the cinder pit, of which there are 2 side by side, with a track between them for the cinder gondolas, then across the table, a 70-ft. one, & on into the house. When they go out to their trains they pass out on another track, & are not held by the incoming engines. The cinder pits have a bar of iron 4 x 1 in. on each side near the top, supported by brackets, which makes a railway on which the ash buckets are moved along to the center of the pit, where an air hoist lifts the buckets of ashes up over the gondolas & they are dumped. The cinder hoist extends over both cinder pits. The cars of coal are drawn up on the coal chute with a cable passing over pulleys at the end of the building & attached to a locomotive on the tracks below; 4 cars can be pulled up at once. In the end of the coal chute is located the sand house, with drier on the ground floor. From there the sand is elevated to the bins above with air pressure. The storage bins for the fresh sand hold about 800 yards. In the way of running repairs there will be enough machinery to do considerable light work. There is one drop pit which will take out a pair of drivers or truck wheels. As this is a terminus of both the Middle & Detroit divisions, a large number of engines will be handled here daily. The old roundhouse at Ft. Gratoit, of 19 pits, will now be used for a repair shop.

Surveys, Construction, Betterment, &c.

Algoma Central.—On Feb. 5 we were informed that the Michipicoton branch was completed to within 2 miles of the Helen Mine, & would be finished to the mine by April 1. This branch will be extended during the year to connect with the C.P.R. near Grassett station. Contractor Conmee has commenced work on the main line to Sault Ste. Marie, his contract requiring the completion of 12 miles by June 1. It is intended to complete 50 miles of the main line this year as well as the Michipicoton branch, which will also be about 50 miles in length. It is intended to connect the

main line with the Michipicoton branch during 1901. The line is being laid with 85 lbs. steel & equipped with 100 ton locomotives from the Baldwin Locomotive Works, & 110,000 lbs. steel ore cars. (Feb., pg. 41.)

The Canada Atlantic has built a branch line known as the McAulay Central Ry., from 5 miles west of Madawaska, which is 130 miles west of Ottawa, up to the scene of lumbering operations in the shanties, a distance of about 10 miles.

The Canadian Northern Ry. starts at Gladstone Jct., on the Manitoba & Northwestern Ry., 35 miles west of the latter line's southern terminus at Portage la Prairie, therefore, in order to reach Winnipeg by existing lines, the C.N. has to run over the M. & N.W.R., now about to be leased by the C.P.R., to Portage la Prairie, from which it has a choice of two routes to Winnipeg, either by the C.P.R. or by the Northern Pacific's Portage branch. Last year negotiations were in progress between the C.N.R. & the N.P.R. for running rights for the former over the latter's Portage branch, but they were broken off. It is understood that if it fails to make satisfactory running arrangements in order to reach Winnipeg the C.N.R. will build between Winnipeg & Gladstone Jct. The old Winnipeg & Hudson's Bay Ry. Co., whose franchise & property has passed into the hands of the C.N.R., built 40 miles of line from just west of Winnipeg to a point between Shoal Lake & Lake Manitoba, but never operated it. Probably some 20 or 30 miles of this line from the Winnipeg end would be utilized & a new line would be built for the balance of the distance to Gladstone Jct. Eventually the whole of the 40 miles built by the W. & H.B. Ry. is likely to be put in running order, & it will probably be extended by way of the narrows of Lake Manitoba to connect with the C.N.R. main line in the Dauphin district.

Canso & Louisburg.—Several railway papers published in the U.S. have stated that this Co. will build a bridge over the Strait of Canso, at an estimated cost of \$3,000,000. We are officially informed that the Co. has no such intention, as it is pretty certain that such an enterprise would not pay for many years to come. About 10 miles from the Strait of Canso the River Inhabitants will be crossed by a bridge about 800 ft. in length, 2 spans of 200 ft. each & two 50 ft. girder approaches, with trestles, fills, etc. It is expected to cost about \$75,000 and will be the largest bridge on the line. We are also informed that construction

will be pushed on rapidly as soon as weather will permit. It is stated that Chief Engineer Armstrong has located 30 miles of line to St. Peter's, & that the cutting out of the right of way has commenced. (Feb., pg. 41.)

Central Ontario.—We are officially informed that the extension from Ormsby to Bancroft, 21 miles, is practically all graded, there being only a few small places of rock yet to take out. Two miles of track have been laid & ballasted. The rails & all material for laying the balance of the track are now on the ground & track laying will be started as early as possible in the spring. It is expected the whole line will be completed next summer. This line will open up a fine timber district & give an opportunity of developing a number of valuable mineral deposits. (Jan., pg. 8.)

Edmonton, Yukon & Pacific.—A Montreal despatch dated Feb. 26 stated that the railway & traffic bridge built by the Dominion over the north Saskatchewan river at Edmonton having been completed so that connection can be made with the terminus of the Calgary & Edmonton Ry., on the south side of the river, it is probable that construction will be commenced this year on the Edmonton, Yukon & Pacific Ry. which is projected to run from Edmonton either to the Yellow Head Pass or to the Peace River Pass, & thence to a port on the Pacific Ocean in B.C. It is said that Mackenzie, Mann & Co. now control the E.Y. & P. charter.

Great Northern of Canada.—Col. Jas. McNaught, of New York, who is said to be interested in this line, now being extended westward to connect with the Canada Atlantic at Hawkesbury, is reported to have recently stated as follows: "Plans have been partially completed for a new great transcontinental railway line, with a connecting line of steamships to Liverpool, by which the distance between that city & the western grain States is to be shortened 800 miles. The new Milwaukee Southwestern is to be part of this system, which, when completed, will extend to the Pacific Coast. The final proposition of the M.S.Ry. Co., which is to be built from Milwaukee to Rock Island, Ill., will unquestionably be accepted by a large majority. It will involve a subsidy from Milwaukee County of \$800,000 in county bonds to aid in the construction of the road, for which the county is to receive noncumulative preferred stock of the Co. This road will be operated in connection with the Canada Atlantic & the Great Northern Ry. of Canada. The line of the C. A. & its connections will be used as far as

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Ottawa. From there to Quebec the connection will be furnished by the G.N.R. which is now under construction, & will be completed by June. The line will be in full operation to Quebec by the middle of Aug. The C.A. has an outlet on Georgian Bay, so that grain could be shipped from Milwaukee to this point by steamer. Negotiations for the acquisition of steamers for the new Quebec-Liverpool ocean line, which is to be part of the system, are pending. It has not been definitely settled by which route the Pacific is to be reached, but it is understood that one of the existing lines will operate in harmony with the new route to the Atlantic." (Jan., pg. 8.)

Great Northern (U.S.A.)—It is said that a line parallel with the Duluth, Messaba & Northern Ry. will be built by the G.N.R., that preliminary work is under way, & that this road will run within 3 miles of the rival line, & will extend northerly 50 miles through Columbia Jct. to Nelson, Minn., crossing the St. Louis river at Columbia Jct. Another Great Northern line will, it is said, extend from Virginia, Minn., easterly 70 miles to Beaver Bay on Lake Superior.

Intercolonial.—The Dominion estimates for the year ending June 30, 1901, contain the following items to be expended on capital account:

Building at Truro.....	\$ 2,600
Iron highway bridge, Rocky Lake.....	5,000
Additional houses for engines.....	80,000
Balance due on Halifax cotton factory branch ..	5,802
Freight shed station at Rockingham.....	1,800
Extension cotton factory branch at Halifax.....	70,000
Coal trestle at Stellarton.....	3,500
Station accommodation, Westville, N.S.....	8,000
Accommodation at Sydney.....	39,000
Sidings near Albion mines.....	2,500
Station yard at Truro.....	2,500
Accommodation at Halifax.....	16,200
Improvements at Mulgrave.....	25,000
Subway at Christy's Brook, Amherst.....	1,800
Increased accommodation at Amherst.....	3,500
Original construction.....	2,000
Land damages on Oxford, New Glasgow & Cape Breton division.....	2,000
Strengthening bridges.....	100,000
Improved accommodation & facilities along the line of railway.....	104,000

Inverness & Richmond.—It is said that about 31 miles of rails have been laid from Port Hastings towards Port Hood, that about 450 men are employed, & that passenger trains will be running to Port Hood by July. (Jan., pg. 8.)

Lake Erie & Detroit River.—The route for the extension of this line from Ridgetown to St. Thomas, Ont., has not yet been decided. The Co.'s Engineer is now surveying a second line. It is probable that the extension will serve the following places between the points mentioned above, viz., Highgate, Muirkirk, Rodney West, Lorne, Dutton, Iona & Shedden. It is not yet announced whether the Co. will build the line itself or give out contracts. (Feb., pg. 42.)

The Co. is applying to the Dominion Parliament for an extension of time for the commencement & completion of its proposed line from Simcoe to Fort Erie. An Ottawa despatch relating to this stated that the proposed line was to be made a link of the Wabash system between Buffalo & Detroit. We are informed that there was no foundation for this statement.

Nova Scotia Southern.—A deputation of the Halifax Board of Trade waited on the N.S. Government recently in reference to this line now being built from Shelburne to New Germany. Members of the deputation stated that Halifax would support the proposition to give a provincial subsidy from Shelburne to New Germany if the promoters of the line would satisfy the Government as to their ability to extend the line into Halifax, but if such a guarantee could not be given the Board would not decidedly oppose the grant, but would leave the responsibility with the Government. The Premier stated that the Government desired to secure construction of the whole line into Halifax, which, in connection with the Halifax & Yarmouth Ry., would give a through line into Yarmouth. President Hervey, of the N.S.S., stated that his Co. wished to get into Halifax, as the extension would double the value of the line from New Germany to Shelburne, & he expressed his willingness to satisfy the Government as to the Co.'s ability to build the whole line provided the usual subsidies were granted by both Governments. Authority has already been given for the subsidizing of 20 miles of the line by the Dominion, & he stated that when the contract was formally entered



QUEEN STREET SUBWAY, TORONTO, LOOKING WEST.

The total cost of this work was \$122,317.05, the masonry contract being \$63,375, & the iron girders carrying the G.T.R. & C.P.R. tracks costing \$17,454.

owned by City of Toronto not yet built and double line of cars

into the Co. would be willing to begin operations on the Halifax end of the line & not to ask for payment of any of the subsidies until the whole of the work was completed. There is said to be some difficulty about terminal facilities at Halifax, but the impression is that it cannot be overcome. (Dec., '99, pg. 352.)

Ontario & Rainy River.—Up to Mar. 5 a little over 20 miles of track had been laid west from Stanley. Track laying was recommenced on that date & it is hoped to continue the work until 40 miles are laid, which will use up all the rails now on hand. Track laying has been somewhat delayed by having to wait for timber for trestles, but it is now expected to lay about a mile a day until the 40 miles are completed. About 900 men are employed on grading and are covering the first 100 miles west from Stanley. (Feb., pg. 42.)

Prince Edward Island.—J. W. McManus has not yet commenced grading the first 10 miles of the Murray Harbor branch, but will probably start as soon as weather will permit. The contract calls for the completion of the work by Aug. 1. The survey for the bridge over the Hillsborough River, at Charlottetown, is about completed and it is expected that as soon as the site is decided upon tenders will be invited. The Dominion estimates for the year ending June 30, 1901, provide \$700,000 for the branch, including the bridge. (Feb., pg. 43.)

Restigouche & Western.—Application is being made to Parliament for power to build an extension of this line, including a railway bridge across the St. John River at a point between Grand Falls & Edmundston, N.B.

Salisbury & Harvey.—J. Hamilton, C.E., is reported to have completed the survey for the proposed extension of this line from Baltimore to Moncton. Baltimore is 14 miles from Salisbury & 31 miles from Albert, the 2 termini of the S. & H. Ry. (Feb., pg. 43.)

The South Shore Ry.'s extension from Sorel to Yamaska, Que., recently completed, is 10 miles in length. (Feb., pg. 43.)

A railway bridge is being built over Loch Etive, at the Falls of Lora, Scotland. When completed, its span of 500 ft. will be the second largest in Europe, coming next to that of the Forth Bridge.

The Houston & Texas Central Ry. has recently created the office of Chief Gardener, the incumbent of which will have charge of making & taking care of the station grounds & flower gardens along the line.

Railway Equipment Notes.

The G.T.R. has recently put 6 new baggage cars of up-to-date design, on the Montreal-Chicago run.

The White Pass & Yukon has asked tenders for 2 narrow-gauge 10-wheel locomotives, with 16 x 20 in. cylinders.

The Dominion Iron & Steel Co. has ordered 60 stone cars of 80,000 lbs. capacity from Rhodes, Curry & Co., Amherst, N.S.

The Manitoba & Northwestern Ry. has ordered two compound consolidation locomotives for July delivery. They will be practically the same in size & weight as the locomotives of this class which have recently been built for the C.P.R.

The Northern Pacific is building, at its South Tacoma shops, 350 flat cars, 41 ft. long & of 70,000 lbs. capacity, & is reinforcing at Tacoma & Brainerd some 1,500 gondola cars, changing them from 40,000 lbs. to 50,000 lbs. capacity. It is also building 500 box cars of 70,000 lbs. capacity.

An item has been going the rounds of the daily press stating that the G.T.R. has decided to equip all its passenger rolling stock with a patent cushion truck brake. We are advised that nothing whatever is known of this brake by the management. It would appear that the item was started going as a free advertisement for the patentee.

The Canada Atlantic shops at Ottawa, in which work was interfered with a short time ago owing to the scarcity of material, have resumed operations & are running on regular time. The Co. proposes to build about 700 freight cars by July 1. They will be principally box cars for grain traffic, but a number of refrigerator & other cars will also be constructed.

The Dominion estimates for the year ending June 30, 1901, contain the following items for the Intercolonial:—

To change air brakes on passenger cars, etc.	\$ 13,000
To apply air brakes to freight cars	40,000
To change couplers on passenger cars	26,000
To equip passenger cars with vestibules	10,000
To provide machinery at shops	5,000
To change drawbars on freight cars	20,000
To provide additional rolling stock	950,000

It is expected about 20 locomotives will be bought, and also a number of freight cars.

The Algoma Central Ry. has ordered 4 consolidation locomotives from the Baldwin Locomotive Works, to be delivered in Aug. Following are the general dimensions:

Cylinders	21 in. x 26 in.
Driving wheels	56 in.
Wheelbase total	23 ft. 9 in.
driving	15 ft. 1 in.
Weight, total, about	184,000 lbs.
on driving wheels, about	165,000 lbs.
Boiler diameter	68 in.
Tubes	3 1/2 in. diam.; 13 ft. 6 in. long.
Firebox	120 1/2 in. x 42 in.
Tank capacity	4,500 gals.

The Baldwin Locomotive Works expect to establish, this year, a new record in the construction of locomotives. The greatest number ever turned out from the shops in any one year was 946, in 1891. This year, it is confidently expected, the 1,000 mark will be reached. In Feb. 93 locomotives were shipped. There are now on the books orders for 700 locomotives; enough to keep the plant busy until fall. But once before have the works been filled to their capacity for a greater length of time ahead, & that was when the capacity was much less. They have never had more orders ahead for locomotives. At present 7,000 men are employed.

The recent consolidation of the Pullman & Wagner car companies necessitated an amount of work which is not at first thought of. Aside from the changes necessary in the offices & stationery, about the most interesting were those made necessary by the word "Wagner" being painted upon the 720 cars of that Co., as well as the renaming of the cars themselves. Of the 720 cars operated by the Wagner Co., 502 bore exactly the same names as 502 of those belonging to the Pullman. A list of these duplicated cars was made out & the day after the transfer the painters went to work changing them. The first "Wagner" sleeper was metamorphosed by paint into a "Pullman," & its name changed from "Java" to "Paltava." The Pullman standard lock is being placed in former Wagner cars, thus necessitating a change of 40,000 locks. The bed linen, blankets, towels, door-mats, rubber foot-mats, & the glass in those windows containing monograms will all have to be changed, & it may be months before the alterations are completed.

The Northey Co., Ltd., has been incorporated under the Ontario Companies Act, with a capital of \$350,000; to take over as a going concern the business of the Northey Mfg. Co., Ltd., at Toronto, which consists of manufacturing pumping machinery, gas & gasoline engines. The provisional directors are J. P. Northey, H. S. Pell, & H. R. Hardy.



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P.S.—Still Selling the old reliable Fairbanks' Scales.

Canadian Pacific Railway Equipment.

During 1899 the Co. expended \$2,434,652.38 on rolling stock, shops & machinery.

At the annual meeting to be held April 4, the shareholders will be asked to approve of an expenditure of \$975,000 to provide additional rolling stock this year.

During the past year about 2,000 freight cars of all kinds were built at the Co.'s Perth shops. Material is on hand there for 800 cars, which it is contemplated to complete prior to July 1.

Temperature control apparatus has been placed on the sleeping cars Ivanhoe & Winchester & 1st class car 601, all of which are running on trains between Montreal & Toronto. Sufficient time has not elapsed since the apparatus was put in to enable anything definite to be said as to its efficiency.

Following is a statement of the Co.'s equipment at Dec. 31, 1899:

Locomotives.....	690
First & second class passenger cars, baggage cars, & colonist sleeping cars.....	627
First class sleeping & dining cars.....	113
Parlor cars, official & paymaster's cars.....	33
Freight & cattle cars, (all kinds).....	19,005
Conductors' vans.....	362
Board, tool & auxiliary cars & steam shovels.....	682

The Co. is building eight 1st class coaches at its Montreal shops. These cars will be 65 ft. long over bodies, equipped with wide vestibules & standard steel platforms, mounted on 6-wheel trucks, Westinghouse high speed brakes, 40 in. steel tired wheels. The exterior of these cars will be of the Co.'s standard. The interior finish will be in mahogany of its new standard design & similar to the last lot of 2 cars, nos. 600 & 601, which were described & illustrated in our last issue, & which have been pronounced by the travelling public as second to none on this continent; they will be equipped with acme lamps & wired for electric lighting in the future. The Co. has been experimenting with three different electric light systems generated from the axle, but the management is not fully satisfied with either; one system, however, has run steadily between Montreal and Ottawa with very good success.

RAILWAY APPOINTMENTS, Etc.

Canadian Pacific.—F. P. Gutelius, heretofore Superintendent of the Columbia & Western Ry., from West Robson to Trail & Rossland, has been appointed Resident Engineer of all the C.P.R. lines in the Kootenay & Boundary Creek districts, with headquarters at Nelson.

D. O. Lewis, Roadmaster of the Columbia & Kootenay branch, has also been appointed Roadmaster of the Nakusp & Slocan branch. The announcement made last month, that he had been appointed Division Engineer of the lines in the Kootenay district, was incorrect.

H. L. Johnson, heretofore Roadmaster of the Nakusp & Slocan branches, has been appointed Roadmaster of the Columbia & Western Ry., from West Robson to Midway.

W. W. Colpitts, Chief Clerk in the President's office, has been transferred to the office of the Chief Engineer of Construction at Winnipeg, H. E. Beasley, heretofore Superintendent of the Kootenay lines at Nelson, B.C., succeeding him at Montreal.

Grand Trunk.—As foreshadowed in our last issue, G. B. Reeve has resigned his position as General Traffic Manager of the G.T.R. system, & of the Central Vermont Ry., to take effect April 30, & it is understood he will reside in California. A portrait of Mr. Reeve, accompanied by some biographical notes, appeared in our Jan. issue. No announcement as to the appointment of a successor has been made, & many are under the impression that the position will be abolished, & that the freight & passenger departments will be under distinct heads in future.

P. J. Lynch, heretofore Trainmaster of 6th & 7th districts at Belleville, Ont., has been appointed Trainmaster of 22nd, 23rd & 24th districts at Stratford, Ont.

J. A. McLardy, heretofore Despatcher at London, has been appointed Chief Despatcher of the Southern Division at St. Thomas, Ont., vice W. Armstrong assigned other duties.

Mainly About People.

A. Gaboury, Manager of the Quebec & Lewis Ferry, died Feb. 25.

Jas. McShane, formerly Mayor of Montreal & an active politician, has been appointed Harbor Master of Montreal.

Hugh Sutherland, of Mackenzie, Mann & Co., Toronto, sailed for England, Mar. 10, accompanied by Mrs. Sutherland.

Mrs. Ratcliff, wife of Jos. Ratcliff, of the C.P.R. Advertising Dept., & daughter of A. Devine, of the G.T.R., died in Montreal Mar. 4.

J. M. Copeland, formerly with the Great Northern Ry. (U.S.A.) has been appointed freight & passenger solicitor for the Chicago, Milwaukee & St. Paul, at Toronto.

Harry A. Norton, of Boston, is making an extended trip to Mexico & the Pacific Coast in the interest of the Norton ball-bearing jacks, & reports business unusually good.

A Monte Carlo pickpocket is said to have recently relieved Sir C. Rivers-Wilson, President of the G.T.R., of his pocketbook, containing \$1,200 in cash & some valuable papers.

C. R. Hosmer, of the C.P.R. directorate, has been elected a director of the War Eagle Consolidated Mining & Development Co. He is said to be the largest holder of the stock after Geo. Gooderham.

W. Seward Webb, of New York City, President of the St. Lawrence & Adirondack Ry., recently sent through T. Tait, Manager of the C.P.R. Eastern lines, a check for \$1,000 for the Canadian Patriotic Fund.

Capt. Frank McGlynn, who formerly sailed many of the vessels of the Norris & Neelon fleets, died at St. Catharines, Ont., Feb. 21. Death was caused by shock consequent on the explosion of a giant firecracker.

A. D. Baker, who fought during the Matabele war, & left the Chartered Co.'s service with the rank of sergeant-major, volunteered for service in South Africa, & has been appointed on Lord Roberts' bodyguard as sergeant-major. He is a son of Archer Baker, European Traffic Manager of the C.P.R.

Alex. Fraser, railway contractor, who died at Parkdale, Toronto, Feb. 25, of paralysis, was born in Banffshire, Scotland, in 1836, came to Canada about 1855 with his brothers, & took up the business of railway contracting, which he followed throughout life. He settled first in Arthur, Ont., where for some years he occupied the office of reeve. He left there about 16 years ago, & went to Parkdale, where he resided until his death. He was associated in business with G. P. Magann, of Toronto.

Vice-President J. M. Egan, of the Central of Georgia, formerly General Superintendent of the C.P.R. at Winnipeg, has lately issued his third pamphlet containing, "Facts for the Farmers" along the lines of his road. Of the first pamphlet 30,000 copies were printed. In this last issue Mr. Egan describes the work of agricultural experiment stations, especially in connection with fertilizers. He also discusses pure water & how to obtain it, & skimmed milk & what it may be used for.

Lauchlan Alex. Hamilton, Land Commissioner of the C.P.R., whose portrait is given on pg. 65 of this issue, is a son of the late W. B. Hamilton, & grandson of Capt. J. M. Ham-

ilton, late H.M.'s 5th Foot. He was born at Penetanguishene, Ont., Sep. 20, 1852, & was educated at Collingwood High School. He is a provincial land surveyor for Ontario, Manitoba & British Columbia, also a Dominion land surveyor. After occupying a position for several years in the office of the Surveyor General in the Department of the Interior at Ottawa, he was appointed Assistant Land Commissioner of the C.P.R., & on the retirement of the late J. H. McTavish from the Land Commissionership succeeded him in that position. While Assistant Land Commissioner he resided for several years at Vancouver, & was upon the incorporation of that city elected an alderman, & held the chairmanship of the Board of Works & By-Laws Committees in the Council. He was for several years President of the Winnipeg Rugby Football Club. He is a member of the Church of England, & has served as representative to the Provincial & General Synods. For several years he has been a director of the Winnipeg Industrial Exhibition, filling also at different times the offices of President & Vice-President, & also occupying the chairmanship of several of the committees. He is an enthusiastic lover of art, & of late years has travelled considerably on the European continent.

Dominion Railway Legislation.

During the present session of the Dominion Parliament the following measures have been brought up:—

To incorporate the Alaska & North-western R.R. Co., to build a railway from Pyramid Harbor, at the head of Lynn Canal, or from the International boundary near the Lynn Canal, through the Chilkat Pass, thence by the Dalton trail to Fort Selkirk. Applicants, S. W. Jones & F. Ames, Boston, Mass.; J. J. Gillies, Dawson; G. P. Magann, Toronto; G. Campbell, Philadelphia, Pa.; J. Mather & G. P. Brophy, Ottawa.

To incorporate the Alaska Yukon Ry. Co., to build a line from Pyramid Harbor, on the Lynn Canal, or from a point on the International boundary, near Chilkat Pass, to Dalton's House, & along the Dalton Trail to Fort Selkirk, thence to the 141st meridian at or near Fort Cudahy. Applicants, J. Dugdale, F. Pennington, & E. A. Wigan, of London, Eng.

To extend the time for the completion of the construction of the Atlantic & Lake Superior Ry., & to empower the Co. to supply light & motive power.

To declare the Arrowhead & Kootenay Ry. to be a work for the general advantage of Canada, & to extend the time for its completion & for other purposes. This bill was withdrawn after being referred to the standing committee on railways.

To incorporate E. T. Galt & others, of Lethbridge, Alta., as a railway & colonization company, to construct & operate a railway from between Lethbridge & Stirling, on the Alberta Ry. & Coal Co.'s line, to the International boundary.

To empower the Algoma Central Ry. Co. to change its route from that authorized by its act of incorporation.

To extend the time for the completion of the Bay of Quinte Ry., & to amend the acts relating to it.

To empower the Brandon & South-western Ry. to build the following lines in addition to those named in its act of incorporation:—From or near Brandon, Man., to or near Gladstone, thence to Carman, thence to Winnipeg, & also a line from Carman to the International boundary in range 5 or 6; also a line from township 6 or 7, range 4 or 5, to the International boundary in township 1, range 16 or 17, & also a line from township 5 or 6, range 12 or 13 to the International boundary line in township 1, range 11 or 12, to increase the capital stock to \$2,500,000, & to extend the

time for the commencement of the line to Nov. 1, 1903.

To extend until Dec. 31, 1904 the time by which the British Columbia Southern Ry. Co. must complete the section of its line between the western terminus of its central section on the lower Kootenay River & the Pacific coast, by the most convenient route to a favorable place for crossing the Fraser River to the city of New Westminster, thence to a suitable terminus on Burrard Inlet, including a branch line to Nelson, via Salmon River, & a branch line from a point on its main line, or the forks of Michel Creek, by way of Michel Creek to Martin Creek.

To change the name of the British Yukon Mining, Trading & Transportation Co. to the British Yukon Ry. Co., & to empower it to extend its railway from Fort Selkirk to Dawson City, thence to the 141st meridian, with branches from the main line at or near Cariboo Crossing to Teslin Lake or river, & to Atlin Lake or Atlin City, & with power to build other branches, not exceeding 50 miles in length, with the consent of the Governor in Council.

To incorporate the Buffalo Ry. Co., empowering it to carry on its undertakings in Canada, & to purchase the assets, business, etc., of the Niagara Falls Park & River Ry. Co., & of certain bridge companies, etc.

To extend the times for the commencement & completion of the Canada & Michigan Bridge & Tunnel Co.'s works for 5 & 7 years from the passing of this measure.

To revive the power of the Canada Southern Bridge Co., to construct & operate a railway bridge across the Detroit River from Amherstburg, Ont., towards the Island of Grosse Isle, Mich., the work to be completed within 10 years from the passing of this measure.

To authorize the C.P.R. Co. to construct, acquire & operate certain railway lines in Manitoba & the N.W.T. & to issue securities thereon. Full particulars of this measure were given in our issue of Nov. '99, pg. 325.

To incorporate the Comox & Cape Scott Ry. Co., to build & operate a railway from Comox district, Vancouver Island, through Sayward & Rupert districts to Cape Scott, or some other point near the north end of Vancouver Island. Applicants: J. Dunsmuir, R. M. Jeffrey, J. A. Lindsay, L. H. Solly & H. K. Prior, of Victoria, B.C.

To extend the times for the commencement & completion of the Cowichan Valley Ry., of which Senator Cox & others are provisional directors, to June 13, 1902 & June 13, 1905, respectively.

To authorize the increase of the capital stock of the Dominion Atlantic Ry. Co. & to confirm its stock issues, etc.

To incorporate J. Coates, of Ottawa, & others as a company to construct a railway or tramway from Fifty Mile or Lewes River to the mouth of the Takhina River, etc.

To incorporate W. J. Conroy, of Deschenes, Que., & others as a company to construct & operate a railway from the mouth of French River to Pembroke, Ont., thence to Portage du Fort, Que.

To incorporate the Gaspé Short Line Ry. Co. to build & operate a line from Gaspé Basin, Que., following the valley of the York River for about 30 miles, thence through the interior of the Gaspé Peninsula to the I.C.R. north of Causapsal, with branch lines to Paspebiac, or to any point on the Baie de Chaleur Ry. Applicants: Hon. S. Hanbury & H. Higgins, London, Eng.: L. K. Joncas, Quebec; C. B. K. Carpenter, Gaspé Basin; J. X. Lavoie, Perce.

To empower the Grand Valley Ry. Co. to acquire & operate ferry boats between Port Dover & points on the great lakes, etc., to construct & operate a railway from Goderich to Port Dover, with branches, & to change the name of the Company to the Port Dover, Brantford, Berlin & Goderich Ry. Co.

To extend the time for the completion of the Great Eastern Ry., & to empower the Co. to supply light & motive power.

To change the head office of the Hereford Ry. Co. to Sherbrooke, Que.

To extend the time for the completion of the Kaslo & Lardo-Duncan Ry. for 5 years from the passing of this measure.

To incorporate L. A. Manly & H. S. Cayley, of Grand Forks, B.C., & W. T. Smith, of Greenwood, as the Kettle River Valley Ry. Co., to construct & operate a railway from the International boundary line near Cascade, B.C., via the valley of Kettle River, to Carson, with branch lines.

To authorize the Kingston & Pembroke Ry. to extend its line from Renfrew, Ont., across the Ottawa River to Bryson Que., thence northward to the eastern branch of the river.

To incorporate J. Patterson, of Hamilton, & others, as the Lake Superior & Hudson's Bay Ry. Co.

To extend the time for the construction of extensions & branches of the Manitoba & Northwestern Ry.

To incorporate J. McKay, of Sault Ste. Marie, Ont., & others, as the Manitoulin & North Shore Ry. Co.

To authorize the Montford & Gatineau Colonization Ry. to extend its line from the Great

Northern Ry., near St. Canut, to the Union Jacques Cartier Ry.

To extend the time for the completion of the Montreal & Ottawa Ry. for 4 years from the passing of this measure.

To incorporate the Morris & Portage Ry. Co., to build a line from Morris, Man., to Portage la Prairie. Applicants: F. N. Bell, Morris; T. H. & C. Metcalf, Portage la Prairie; J. R. Grant, H. E. Sharpe & W. A. Cavanaugh, Winnipeg.

To extend the times for the commencement & completion of the works of the Niagara Grand Island Bridge Co. for 5 & 10 years from the passing of this measure.

To extend the time for the completion of a certain portion of the Ontario & Rainy River Ry.

To extend the time for the completion of the main line & branches of the Oshawa Ry. Co., & to amend the acts relating thereto.

To authorize the Pontiac Pacific Jct. Ry. Co. to construct & operate a railway from or near Quyon or Shawville to Pembroke, etc.

To incorporate the Portage du Fort & French River Ry. Co.

To incorporate A. Jarvis, of Toronto, & others, as the Port Arthur Ry. & Terminals Co., to acquire & operate the Port Arthur, Duluth & Western Ry., etc.

To incorporate F. Pennington, of London, Eng., & others, as a company to construct & operate a railway from Pyramid Harbor, near the head of Lynn Canal, northward to Dalton's Post, thence to Fort Selkirk & Dawson.

To incorporate J. Dugal & others as the Quebec & Lake Huron Ry. Co.

To incorporate the Quebec & New Brunswick Ry., to build a line from Connor Station, N.B., on the St. Francis branch of the Temiscouata Ry., to the I.C.R. at or near St. Charles Jct., or to the Quebec Central Ry., at or near St. Anselme, or to the G.T.R. at or near Chaudiere Jct., a distance of about 130 miles. The applicants are Hon. J. Costigan, of Ottawa, & others.

An act respecting the Quebec Bridge Co. To incorporate the Quebec Southern Ry. Co.

To authorize the Restigouche & Western Ry. Co. to construct & maintain a railway bridge across the St. John River at a point between Grand Falls & Edmundston, N.B.

To extend the times for the commencement & completion of the works of the River St. Clair Ry. Bridge & tunnel Co., for 5 & 10 years from the passing of this measure, & to restore the power conferred on it by its act of incorporation as to the bridging or tunneling of the St. Clair River, from Moore Township, Ont., towards St. Clair, Mich.



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These Jacks are made with Malleable Iron Frames, Steel Pawls, Machinery Steel Bearings and Pivots, forged Steel Rack. The wearing parts are removable and readily renewable at slight expense. The rectangular base gives great lifting strength and fits into close quarters better than other shaped stands. Adaptable to either high or low set loads.

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To incorporate the St. Mary's River Ry. & Colonization Co.

To empower the Schomberg & Aurora Ry. Co. to extend its line westward from Schomberg, Ont., to Shelburne, thence to Durham, also eastward from its present eastern terminus to Oshawa.

To amend the acts relating to the Thousand Islands Ry. Co.

To authorize the United Counties Ry. to build & operate a railway from some point on its line to the St. Lawrence River at or near Valleyfield, Que.

To extend the time for the commencement & completion of the works of the Western Alberta Ry. Co. Elias Rogers, Toronto, is one of the promoters.

RAILWAY PROJECTS, ETC.

Alaska.—A U.S. military route into Alaska has been reported on by Capt. Abercrombie, U. S. A. It would connect Port Valdez, Alaska, & Port Egbert, on the Yukon River. Starting from Valdez, the exploring party passed up the valley of Lower River with a nominal grade, & through Keystone Canyon, with ordinary work, & emerged on the foot-plain of the inner canyon basin. From the latter point they found two feasible routes, one east of Marshall Pass, crossing at an elevation of 1,700 ft., & then going down the Tasnuna to the Copper River Valley. The other route turns north, crosses the mountain at Thompson Pass, with an elevation of 2,600 ft. & thence down the Teikell River Valley, through the swampy pass at the head of the Knata, & then down the Tonsina to the Copper River Valley. Valdez is 1,250 miles from Seattle, but there is an unimpeded outside passage between these points, which practically offsets the double insurance rates on the 1,050-mile inside passage to Skagway. The direct line from Valdez to Port Egbert is 310 miles, & the railway would probably be 350 miles long. The estimate is \$753,500 for a 3 ft. gauge road, at \$22,531 a mile.

Algoma & Manitoulin Ry.—Application is being made to the Ontario Legislature to incorporate a company under this name to build a line from Little Current, Manitoulin district, to the south-east shore of James Bay, & from a point in Drury Township easterly to Sudbury, & from Little Current to the south shore of Manitoulin Island, & from Tobermory to the town of Meaford, passing through or near Wiarton & Owen Sound, with power to construct branch lines not exceeding 12 miles in length, & with other powers. Hearst & McKay, solicitors, Sault Ste. Marie.

The Atlantic & Lake Superior Ry. Co. is applying to the Dominion Parliament to extend the time for the completion of its line.

Batchwanana Bay to James Bay.—Application is being made to the Dominion Parliament to incorporate a Co. to build a railway from Batchwanana Bay, Lake Superior, to the C.P.R., thence to James Bay, near the mouth of Albany River.

Bracebridge & Trading Lake Ry.—Application is being made to the Ontario Legislature to incorporate a Co. under this name to build a railway from Bracebridge to Muskoka Lake, at or near Beaumaris, J. Boyer, Secretary, Bracebridge.

Carson City to Phoenix, Etc.—S. C. Biggs, solicitor, Toronto, gives notice of application to the Dominion Parliament to incorporate a company to build a railway from Carson City, B.C., where Kettle River intersects the International boundary line, northerly along Fourth of July Creek to the junction of its east & west forks, thence westerly to Phoenix mining camp, with branches from Carson City to the Columbia & Western Ry., & to the Central, Wellington, Skylark & Summit mining camps, & to Greenwood.

Carleton & Miramichi Ry.—J. E. Stewart, Andover, N.B., gives notice that application will be made to the N.B. Legislature to incorporate a company under this name, to build a Railway from Bristol station on the C. P.R., to Forreton, thence to the Canada Eastern Ry. at or near Cross Bridge station.

Crow Lake Ry. & Development Co.—The Combined Mining Co., controlled by Pennsylvania people, has $\frac{1}{2}$ mile of track in operation on its property on the Lake of the Woods, & under a measure now before the Ontario Legislature proposes to build a 3 miles extension from Whitefish Bay to Crow Lake. It is said this short piece of line will be of great convenience to the mining community in the Camp Bay region, & if it should be extended to Rat Portage, which is said to be the ultimate object of the Co., it should prove of great value to a number of mining properties along the route.

Guelph to Goderich.—The delegation appointed at the meeting held in Guelph Dec. 14, 1899, waited on Sir Wm. Van Horne & President Shaughnessy, of the C.P.R., in Montreal Mar. 1 to urge the extension of the Guelph Jct. Ry. from Guelph to Goderich. The proposed extension, which would be about 80 miles in length, would go through the counties of Wellington, Waterloo, Perth & Huron, three different routes, which are known as the southern, midland & northern, being spoken of. It is said that construction would not be difficult & that the grades would be easy except at the Goderich end. The only bridge of any importance would be one over the Grand River. The Goderich delegates made the following statement on their return home: "It was stated distinctly by Sir Wm. Van Horne & Mr. Shaughnessy that they fully recognized Guelph's claim, & it was now, & always had been, their intention to carry out the promises made when in a position to do so. They stated that at times circumstances arose that changed for the time being their arrangements; that it had cost an enormous amount to build roads in the West, which they were in a measure compelled to build to meet the requirements of the present & provide for future business. They had now practically completed their work in the West, & intended to wait the development of the country to recoup them in some measure for their outlay. They have not built any lines in Ontario since 1887, except the line from London to the Detroit River. They assured the deputation that it was their intention to extend this line in the near future. A proposition was made that if the C.P.R. was not in a position to build at once, the Guelph Jct. Ry. would build the line, provided the C.P.R. would agree to lease & operate it. Mr. Shaughnessy said the C.P.R. would seriously consider the proposition. Taking everything into consideration, the deputation are very well satisfied with the result of their interview." (Dec., '99, pg. 359.)

Huntsville & Lake of Bays.—C. Cadmus, who is said to represent Toronto & Hamilton people, is reported as endeavoring to organize the Huntsville & Lake of Bays Ry. Co., for the purpose of constructing a line over the portage between Lake of Bays & Peninsula Lake in Muskoka district. The cost of the line is estimated at \$20,000, but the capital of the Co. is placed at \$100,000 as it is proposed to engage in mining also.

Kitimat Arm to Hazelton, &c.—Probably the most serious effort to open up the northern portions of B.C. is contained in the application which has been made to the Dominion Parliament, to incorporate a company to construct a railway from Douglas Channel, Kitimat Arm. The proposed route is northward from that point to Copper River, Kitsalas Canyon & the Skeena River, to near Hazelton, in Cassiar, thence by way of the Babine River, Manion River or Creek & Parsnip

River, to Pine River Pass in Cariboo. An alternative route is by the Kitsalas Canyon, via Bulkeley River to Hazelton. Power is also asked to build lines from the nearest available point of the railway, in easterly & southerly directions, by way of Stuart lakes to a point near Fort George, thence along the valley of the Fraser River to Quesnelle, & also from near Fort George or Stuart lakes, by way of the south fork of the Fraser River to the Yellow Head Pass, with power to extend the railway to Kitimat Arm, along the northerly side of Douglas channel to Hartley Bay. The construction of a line of railway through those districts would completely alter the conditions in the North. It would open up a vast tract of country, a great part of which is practically inaccessible at present. According to reports there is a fine area of agricultural & grazing land in that direction, which could be put to profitable use with the help of a railway. But, of course, it is the mining industry chiefly that this line would be designed to benefit, & in that it would produce a wonderful change. Mining in the North is carried on under serious difficulties, mainly due to the lack of transportation facilities. With the discovery of important coal seams in Omineca, a factor of great importance has been introduced into the problem of opening up that country. It is, of course, much easier to maintain a railway through a region which yields coal than through one which yields none, & where all the fuel consumed has to be carried long distances. Then again the demand for coal in the mining districts will increase in direct ratio with the development of the mines, and the development of the mines cannot proceed satisfactorily without coal. It having been proved that coal is to be found in abundance in the North, (there is said to be \$2,000,000 worth of it in sight near the Skeena river) one of the best reasons for building a railway is provided. —Victoria Times. (Jan., pg. 16.)

Lake Bennett to Chillcoot Pass.—A bill was introduced at the recent abortive session of the B.C. Legislature to incorporate a company to build a railway from Lake Bennett to the summit of Chillcoot Pass. The Victoria Colonist says:—"The bill is only a part of a larger scheme. Its promoters are associated with some Tacoma people who have filed a memorandum of incorporation in the State of Washington for the construction of a line from Dyea to the summit of the Pass, & who are to ask the Dominion Parliament for power to build from the foot of Lake Bennett to a point below White Horse Rapids. The idea is to establish a combined land & water route from Dyea to the Yukon, substantially paralleling the Yukon & White Pass. Members of the Legislature ought to be satisfied that the whole scheme is a feasible one. Experienced railway men say it is not. They say that no competent engineer has ever pronounced upon the practicability of railway construction over the Chillcoot Pass. This Pass is higher than the White Pass, & the distance in which the elevation must be surmounted is shorter. An electric lift to hoist a train up some hundreds of feet & a tunnel with a $10\frac{1}{2}\%$ grade are among the features, which are lightly talked of by the promoters of this new undertaking. The utilization of the water stretches will be possible only for the summer months." The Colonist opposes the granting of the charter especially on the ground that it would injure the White Pass & Yukon Railway in the money markets.

Lindsay, Bobcaygeon and Pontypool.—A deputation, chiefly from the Lindsay district, waited on the Ontario Government, Feb. 13, in reference to this line, which it is proposed to build from Burketon, on the Montreal-Toronto line of the C.P.R., to Lindsay. The line has a Dominion subsidy of \$3,200 a mile & municipal bonuses aggre-

gating about \$100,000. The cost of construction is estimated at \$600,000, and the Co. wants to issue bonds for about \$400,000, the interest on which it is desirous the Ontario Government should guarantee. (Jan., pg. 16.)

The Manitoulin & North Shore Ry. Co. is applying to the Ontario Legislature to empower it to build a railway from Little Current to James Bay, & from township of Drury on its line to Sudbury, also from Little Current to the south shore of Manitoulin Island, & from Tobermory to Meaford, passing through or near Wiarton & Owen Sound, also to change its head office to Sault Ste. Marie.

Mineral Ry. Co.—Application is being made to the Ontario Legislature to incorporate a company under this name to build a railway from Gros Cap harbor, on the north shore of Lake Superior, northerly to the C.P.R.

The Montreal & Province Line Ry. Co. is applying to the Dominion Parliament to extend the time limited for the construction, repair & operation of its railway for a further period of five years.

The Montreal Bridge Co. is applying to the Dominion Parliament to extend the time for the construction of its bridge & to authorize it to lease or purchase connecting lines.

Morden to International Boundary.—Aikins, Culver & Pitblado, solicitors, Winnipeg, gave notice of application to the Manitoba Legislature to incorporate a company to acquire and dispose of land & mining properties, to engage in mining & manufacturing, & to construct a railway from or near Morden to the International Boundary in ranges 3, 4 or 5 west of the first meridian.

Nickel Belt Ry.—Application is being made to the Ontario Legislature to incorporate a company under this name to build a railway from Dowling township, Nipissing district, at

or near Onaping station on the C.P.R. north-easterly through the townships of Dowling, Levack, Morgan, Bowell, Lumsden, Wisner, & Norman, thence southerly & southeasterly through the townships of Norman, Capreol, Garson, Blezard, & McKim, to the Stobie branch of the C.P.R.

The Nipissing & James Bay Ry. Co. is applying to the Dominion Parliament to extend the time for the completion of its line.

North Lanark Ry.—A deputation recently waited on the Ontario Government asking a bonus of \$3,000 a mile for 25 miles of this line to connect the Kingston & Pembroke Ry. with the C.P.R. & Canada Atlantic at Arnprior.

The Ontario, Belmont & Northern Ry. Co. gives notice of application to the Ontario Legislature to extend the time for the building of its railway.

Ottawa to St. Lawrence River.—Application is being made to the Dominion Parliament to incorporate a company to build a railway from Ottawa, through Gloucester & Osgoode townships to Metcalf, thence to Winchester, Winchester Springs, North Williamsburg, & Morrisburg, with a branch line from Winchester to Inkerman, South Mountain & Iroquois, & to extend branches through other portions of the counties of Carleton & Dundas.

The Pacific & Atlantic Ry. Co. is applying to the Ontario Legislature to revive its Act of incorporation, passed in 1886, & to extend the time for commencing & completing the railway. N. W. Rowell, solicitor, Toronto.

Penetanguishene to Midland.—The people of Penetanguishene, Ont., want to persuade the G.T.R. to build a line between that town & Midland, following the shore of the Peninsula, a distance of about 8 miles, though the distance in a straight line between the two

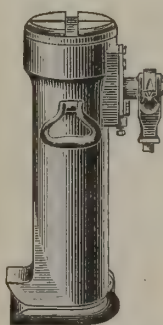
places is but 3 miles. The Midland people, however, want the G.T.R. to build a line between there & Perkenfield, on the Penetanguishene branch, about 6 miles south of Penetanguishene, so as to give a direct line to Toronto for their lumber trade, as well as other traffic.

Quebec & Lake Huron.—J. M. Nicol, of 311 Hammond Bldg., Detroit, & others, are promoting a company under this name, & give the following information in regard to it:—"This line is to run from Quebec west about 440 miles, via Ancienne, Lorette, St. Bazille, St. Alban, St. Ubalde, St. Tite, Grandes Piles, St. Michel des Saints, Rapide de l'Original Riviers, Joseph & Mattawa to the mouth of French River on the Georgian Bay. The large basin formed by the mouth of French River has sufficient depth of water to accommodate vessels drawing 24 feet of water. Exploratory surveys only have been made. The intention of the promoters is to begin building as soon as they have obtained their incorporation on the 115 miles between the River Ottawa & the Georgian Bay. Building may be begun within a month after the engineers start location. The same is true of the section between Quebec & the River St. Maurice. On the section of 30 miles from St. Maurice westward, the work will be difficult in some places, but the intention is to make light grades & curves. When the Quebec bridge over the St. Lawrence is built, the line will connect with the Quebec Central & with the Boston & Maine system, & thus reach Portland & Boston. It is also proposed to furnish an eastern outlet for the Canadian Northern, now being built through Minnesota & Manitoba."

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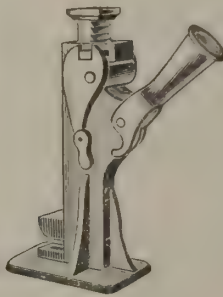
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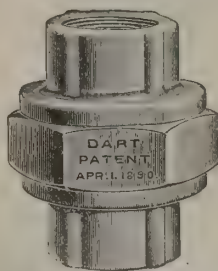
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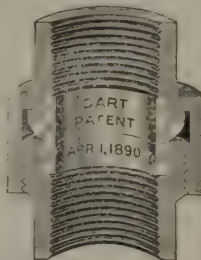
for Railroad Service is the Dart Patent with Bronze Metal Spherical Ground Joints. In use by a large number of railroads and locomotive builders throughout the United States and Canada.

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MONTREAL,

Agents for Canada.



C. P. R. LANDS.

The Canadian Pacific Railway lands consist of the odd-numbered sections along the Main Line and Branches, and in Northern Alberta and the Lake Dauphin District. The Railway Lands are for sale at the various agencies of the company in Manitoba and the North-West Territories at the following prices:

Lands in the Province of Manitoba average \$3 to \$6 an acre.

Lands in Assiniboia, east of the 3rd meridian, average \$3 to \$4 an acre.

Lands west of the 3rd meridian, including the Calgary District, generally \$3 per acre.

Lands in Northern Alberta and the Lake Dauphin District, \$3 per acre.

TERMS OF PAYMENT.

The aggregate amount of purchase money and interest is divided into ten instalments, as shown in the table below; the first to be paid at the time of purchase, the second two years from the date of purchase, the third in three years, and so on.

Interest on the outstanding purchase money is payable in one year, except in case of an actual settler who breaks up at least one-sixteenth of the land within that time. No rebate of interest is allowed on hay or grazing lands.

The following table shows the amount of the annual instalments on a quarter section of 160 acres at different prices under the new conditions:

160 acres at \$3.00 per acre, 1st instalment \$71.90, and nine equal instalments of \$60.
160 acres at \$3.50 per acre, 1st instalment \$83.90, and nine equal instalments of \$70.
160 acres at \$4.00 per acre, 1st instalment \$95.85, and nine equal instalments of \$80.
160 acres at \$4.50 per acre, 1st instalment \$107.85, and nine equal instalments of \$90.
160 acres at \$5.00 per acre, 1st instalment \$119.85, and nine equal instalments of \$100.
160 acres at \$5.50 per acre, 1st instalment \$131.80, and nine equal instalments of \$110.
160 acres at \$6.00 per acre, 1st instalment \$143.80, and nine equal instalments of \$120.

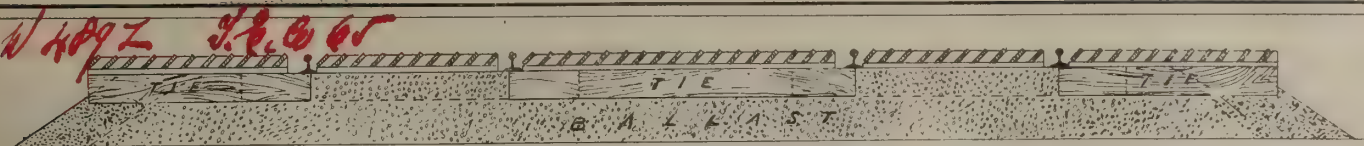
DISCOUNT FOR CASH. If land is paid for in full at time of purchase, a reduction from price will be allowed equal to ten per cent. of the amount paid in excess of the usual cash instalment.

Purchasers paying any instalment, or more, one full year before the date of maturity, will be allowed a discount on the amount of the instalment or instalments so paid at the rate of six per cent. per annum.

Interest at six per cent. will be charged on overdue instalments.

Write for maps and full particulars.

L. A. HAMILTON, Land Commissioner,
F. T. CRIFFIN, Asst. Land Commissioner,
WINNIPEG.



SECTION OF G.T.R. STANDARD SURFACE SLAT CATTLE GUARD.

The Red Deer Valley Ry. Co. is applying to the Dominion Parliament to extend the time for the construction of its railway, & with power to extend the line easterly to the Saskatchewan River.

Sudbury & Nipissing Ry.—Notice is given of application to the Ontario Legislature to extend the time for the commencement & completion of this line.

Thunder Bay District.—Application is being made to the Ontario Legislature to incorporate a company to build & operate a railway from Rosport, on the C.P.R., north of Lake Superior, to James Bay, south of Albany River, at or near its mouth, & with other powers.

Toronto & Collingwood.—W. M. Clark, solicitor, Toronto, gives notice of application to the Dominion Parliament to incorporate a company to build a railway from Toronto to Collingwood.

Toronto-Georgian Bay Short Line Ry.—Watson, Smoke & Smith, solicitors, Toronto, give notice of application to the Dominion Parliament to incorporate a company under this name to build a railway from Toronto to Georgian Bay.

Vancouver Island & the Mainland.—No progress has been made in the effort of the people of Victoria to secure improved communication with the mainland. Several schemes have been under consideration, one being a proposal that the city should subscribe for \$500,000 of stock in a company to acquire the Victoria & Sidney Ry., to extend it into the business part of Victoria, & to a convenient port north of Sidney, to establish & operate a ferry system between such extension on the Saanich Peninsula & the mainland of B.C. south of the Fraser River, & to build & operate a railway from such point on the mainland through Delta, Surrey, Langley, Matsqui, Sumas and Chilliwack. A by-law providing for the acceptance of these proposals was voted on by the ratepayers of Victoria on Feb.

28 & defeated by 630 to 221 votes. (Jan., pg. 17.)

Victoria Mines Ry.—Application is being made to the Ontario Legislature to incorporate a company under this name to build a railway in the districts of Algoma and Nipissing, from the northerly part of Denison township easterly and southerly to the C.P.R. about midway between Whitefish & Worthington stations, also from the township of Garson through that township and Blezard township to the Stobie branch of the C.P.R. McPherson, Clark, Campbell & Jarvis, solicitors, Toronto.

Wabigoon, Manitou & Rainy Lake Ry.—Application is being made to the Ontario Legislature to incorporate a company under this name to build a railway from the south eastern end of Minnetakie Lake or Mine Centre, & from the C.P.R. between Dryden & Tache station southerly (east of Manitou Lake), to the Ontario & Rainy River Ry. between Fort Francis & Sturgeon Falls.

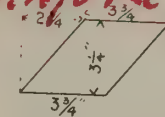
Western Alberta.—Application is being made to the Dominion Parliament to incorporate a company to build and operate a railway westward from some point on the Alberta Ry. & Coal Co.'s line between Lethbridge and the International boundary. It is expected that the line will start from Stirling, 19 miles from Lethbridge, so as to serve the Mormon settlements between there & Cardston. E. T. Galt, President of the Alberta Ry. & Coal Co., is the principal applicant.

A number of other projects which are already before the Dominion Parliament are referred to under the head of "Dominion Railway Legislation" on page 75.

The Baltimore & Ohio Ry. is to use electrical locomotives on a 17-mile grade up the Allegheny Mountains. They will assist the ordinary locomotives in pulling the heavy freight trains up the steep grade.

Cattle Guards on the G.T.R.

The standard surface slat cattle guard in use on the G.T.R. was briefly described in our last issue. A section and plan are given on this page. The material required for a single track guard is as follows: 4 oak sills 5' 0" x 6" x 1 1/2"; 2 oak sills 4' 6" x 6" x 1 1/2"; 32 oak slats 8' 0" at bottom edge and 7' 4" at top edge x 4 1/2" x 1 1/4" dressed; 64 blocks as per small plan given herewith. The slats are set on edge on the sills & kept in position by the blocks.



Mr. Reeve's Retirement.

G. B. Reeve, the General Traffic Manager of the G.T.R., will leave the service of the Co. on the last day of April next, & upon the evening of the following day he will enter upon a new life which he has been planning for the last twenty years. It will be spent amid orange groves & grape fruit, in a temperature which will be equable the year round, & in an environment which will realize an ideal he has long cherished.

"How does it feel for an active man to be out of harness?" Mr. Reeve echoed the question which a reporter put to him.

"Well," said the able railway man with a smile, "I do not know as yet for an actuality, yet I can figure what it will feel like. Not a few of my friends have said, 'You are making the greatest mistake of your life in retiring from active service. You will go away for a year or two & you will collapse, for you will have no interests to sustain you, & you will sink into a wretched torpidity.'

"Well, but I have planned it differently," said Mr. Reeve, with quiet confidence. "I have been thinking it out for over 20 years, & now I am about to realize it. I want to



PLAN OF G.T.R. STANDARD SURFACE SLAT CATTLE GUARDS.

realize my ideals before I hand in my checks. I want to live comfortably & happy, not merely exist for the balance of my life. I first bought land in lower California, which I thought might come under the rule of the U. S. Disappointed in this, I bought some more land in Florida, but found the malaria a fatal objection. Finally, some 10 years ago, I bought property close to Los Angeles, at the foothills, & have been steadily improving it ever since. I have shipped oranges & grape fruit to New York; I have cultivated the English walnut with success, & I look forward to a life of activity when I reach my property. At present I have a superintendent who receives \$175 a month. I will take his place. I will rise at 6 in the morning, & will work till 6 in the evening. And I know all about planting and grafting. I was always fond of flowers & plants & fruit. I perhaps got this love from my father, who was a fancy farmer in England. That is to say, he cultivated & experimented with fancy seeds, which he sold to the trade, & I, in my boyhood, used to delight in grafting on to our wild roses, which bloomed in the hedges—the beautiful hedges which you only find in the Old Country—cultivated specimens which produced the happiest effects. Then, again, at school the boys got a plot of ground to cultivate, & there was a prize attached to taste & perfection of growth. I liked the work then, work which Mr. Brydges encouraged when he came to take hold of the G.T.R., by giving a prize to the country station agents for neat garden plots—a system which only lasted, I am sorry to say, some 3 years.

"But there will be no collapse, there will be congenial activity. And we shall have quite a society. The place is settled by many wealthy Americans—indeed, I will be the poorest among the lot—and there are over 100 Canadians whom I know. So that, while I give up one form of activity, I enter upon another. When I bought the property it was virgin soil. It is now productive as I tell you. I will have plenty to do to look after it. When I was living on Simpson St., I used to get up at 6 o'clock in the morning to work in my garden. I always liked that kind of work, & I have thought this kind of life out for a long time. I will remain in harness till 6 o'clock on the evening of the last day of April. And

on the evening of the following day I shall proceed to my new home."

Mr. Reeve spoke in the highest terms of Mr. Hays & the men he had brought with him when he assumed the management of the G.T.R.

"My relations with the General Manager & all the other officials have been most cordial. I can say the same with regard to all the officials in my own department. Some of them have been 25 years with me. The younger men have also got on well, & everything has been agreeable in all our official relations. I leave of my own motion, feeling that at least I have not permitted the business of the department to fall behind."—Montreal Witness.

Canadian Pacific Railway Land Sales.

	Acres.		Amount.	
	1900	1899	1900	1899
Jan.	31,486	14,718	\$ 100,857.85	\$ 46,411.35
Feb.	23,613	13,747	75,771.19	43,371.69
	55,099	28,465	\$176,629.04	\$89,783.04

Canadian Freight Association.

At a meeting of the Tariff Committee at Toronto Feb. 21 & 22, & at Montreal Mar. 8, minutes 2109 to 2183 were agreed to.

A meeting of the representatives of rail & lake & all-water lines was held at Montreal Mar. 7, the following being represented: Canadian Pacific, Grand Trunk, Intercolonial, Northern Pacific, Great Northern, Michigan Central, Canada Atlantic, Wabash, Lake Erie & Detroit River, Toronto, Hamilton & Buffalo, Niagara, St. Catharines & Toronto Railways, the Northwest Transportation Co., Richelieu & Ontario Nav. Co., Northern Nav. Co., Str. Alexandria, Merchants Line.

Representatives of the Merchants Line reported the following as its proposed fleet for season of 1900: Persia, Ocean, Arabian, Iona, Cuba, Lake Michigan, Melbourne.

The R. & O. Nav. Co. reported the Toronto, Bohemian, Corsican, Spartan, Algerian, Hamilton.

Mr. Smith reported steamer or steamers of the Canada Atlantic Transit Co., or in connection therewith, to & from Depot Harbor.

The Northern Navigation Co. reported the City of Collingwood & Majestic to sail between Collingwood, Sault Ste. Marie, Fort William, Port Arthur & Duluth; also steamers between Collingwood, Owen Sound, Sault Ste. Marie & intermediate ports; also to Parry Sound, Byng Inlet & French River.

Mr. Woolson reported the str. Alexandria on the St. Lawrence River & Bay of Quinte ports route.

Arrangements for the coming season's traffic were entered into.

Northwest Elevators.—The report of the commission appointed to investigate the elevator & warehouse question in the Northwest has been presented to the Dominion Government. It deals with the question of terminal elevators, weighing grain in & out of such elevators, appointments of public weighmasters, & in fact, the entire subject of handling grain in terminal elevators. It recommends the inspection of elevators & warehouses, for the protection of the producers & shippers of grain. The question of flat warehouses is also dealt with, & it is recommended that practically a complete freedom in the construction of flat warehouses be accorded. The Minister of the Interior has prepared a bill in accordance with the report of the Commission, which will be introduced in the Commons by the Minister of Inland Revenue.

E. M. Wood has been appointed Chief Clerk & Accountant of the Dept. of the Railway Commissioner for Manitoba, vice W. W. Cory, resigned.



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Page Woven Wire Fence on Central Vermont Ry., near Irberville, Que.

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CURRENT TOPICS.

Standard Train Rules.

The work of securing uniformity of operating rules is proceeding very satisfactorily. Following the G.T.R., the Canada Atlantic put in effect on Feb. 25 the standard code, slightly modified to suit the conditions of the line. The C.P.R., whose present rules are very near the standard code, is preparing to adopt it at an early date. Mr. Whyte, Manager of the system west of Fort William, recently had a conference with his general superintendents, superintendents & chief dispatchers at Calgary, at which the proposed changes were thoroughly considered, & at which Mr. Tait, Manager of the Co.'s eastern lines, who is a member of the Train Rules Committee of the American Ry. Association, was present, as it is intended when the changes occur to embrace the whole system. As to efficient regulations it has been well said that the standard code of train rules of the American Ry. Association is the result of years of experience of those best qualified to form such a code, & it is undoubtedly in the interests of all railways, their employees, & the public that practically one uniform system should be in force on all lines in Canada, as it already is on nearly the whole of the lines in the U.S. The question is one which should be promptly taken up by the managements of the Government railways, & of other lines which are operating under other rules, most of which may reasonably be put down as faulty & out of date.

The Canada Life Assurance Co.

The 53rd annual report of this Co., published on pg. 89, allays any fears which might have been entertained that the removal of the Co.'s head office to Toronto, or the change in management, would have an unfavorable effect on the business of the year. All along the line gains have been recorded. Especially is this noticeable in the new business written, which amounted to about \$8,000,000, & in the gain in business in force, nearly \$5,000,000. These are the greatest increases in the history of the Co., & bring the total amount in force well above \$80,000,000. The assets have during the year been increased by \$1,325,244.73, & now amount to \$21,364,062. As this is the quinquennial year when the profits of the Co. are usually divided, the appearance of the report was looked for with more than usual interest, especially in view of the recent amendment to the Dominion Insurance Act, which requires the companies to base their valuations on an assumption of an earning power of 1% lower than formerly, & consequently to increase the amount of their invested funds. Although a period of 14 years was allowed in which to effect the change, it appears that this was a concession to the weaker companies. The address of Senator Cox, which as an able & exhaustive exposition of the subject has probably never been equalled in the history of life insurance in this country, treats very fully of the effects of this legislation & the action taken by his Co. to meet it. Although the Co. could at once move to the 3½% basis & still have a substantial surplus, it was decided, on his recommendation, that \$500,000 be set aside with that end in view, & that in addition a substantial dividend to policy-holders be declared. The shareholders have voluntarily relinquished their quinquennial bonus on this occasion. The Co. will now be able to reach the higher standard within the present quinquennium, & through its large amount of invested funds maintain that reputation as a profitable company, which has become a household word throughout Canada.

Transportation Companies & Hotels.

For some time past the C.P.R. Co. has been the largest hotel proprietor in the Dominion, & it is well understood that not only have these hotels proved a valuable assist-

ance to passenger travel, but that they have also paid well as commercial enterprises. The chain of hotels owned & operated by the Co., includes the charming Chateau Frontenac at Quebec, the Place Viger at Montreal; the beautifully situated Banff Springs Hotel, the chalets at Field, Glacier & North Bend, the Hotel Vancouver, & the Hotel Kaministiquia at Fort William, the latter being owned jointly by the C.P.R., & the Hudson's Bay Co.'s, & leased. All these hotels, which are supervised by Superintendent Sheffield, are, it is needless to say, excellently conducted, & on the same up-to-date lines as all other branches of the Co.'s service. The chain is now about to be added to by the erection of a large terminal hotel in Winnipeg. The Grand Trunk management appears to have an aversion to going into the hotel business, & as a consequence the Muskoka district, for the tourist trade of which the Co. has been putting forth tremendous efforts the past few years, is still very deficient of first-class accommodation, but the Co. is willing to assist private enterprise in a liberal way, & it is expected that at least one really good hotel, & perhaps more will be ready for next summer's business. The Canada Atlantic is working on the same lines, & is endeavoring to arrange for the erection of one or two good hotels in the Algonquin National Park, one of the most beautiful & healthy districts in America. We are informed that the Co. will give liberal encouragement to any outside corporation which may be formed for this purpose, & that leading officials will be willing to personally subscribe for stock. The Richelieu & Ontario Navigation Co.'s experience with its hotel at Tadousac has been so satisfactory that it is now building a large hotel at Murray Bay. The tendency undoubtedly is for transportation companies to extend their operations in the hotel line, either directly or by way of subsidies.

Canadian Pacific Construction.

In a recently issued construction supplement, the Railroad Gazette, of New York, gave a list of "railways building & proposed," in which, under the head of "Canadian Pacific," it included lines under construction, & branches, etc., which have been talked of, but in regard to which not even the first stages leading to construction have been reached. This list has been copied in a lot of papers in a way that gives the impression that the works are all in hand or to be started this year. To show the absurdity of this it may be mentioned that a line from Kleinburg, Ont., to Sudbury, & one from Guelph to Goderich, are included in the list, though the chances of either of them being constructed for some years to come are very remote. Shareholders of the C.P.R., seeing the large list of lines mentioned, might conclude that the Co. was about to enter on a wholesale scheme of building, which would certainly not improve its financial position. The only lines to be built by the Co. this year, so far as decided on, have been mentioned by us under the head of "C.P.R. Betterments, Construction, etc.," & as any additional work is decided on we shall promptly record it. It is not probable that there will be any mileage added to the Atlantic or to the Ontario & Quebec Divisions this year. On the Eastern Division, the short connecting line across the City of Ottawa may be gone on with. On the Western Division, the Bonnett Lake branch, about 22 miles, is to be completed. The West Selkirk branch may be extended to the west shore of Lake Winnipeg; the McGregor-Varcoe branch will have rails laid on the 28 miles graded last year, but no announcement has been made as to whether it will be continued to Varcoe; & the Pipestone extension is likely to be pushed on further through the Moose Mountain country on its way towards a connection with the main line near Regina or Moose Jaw. On the Pacific Division, a 15

miles section of the Crows Nest Pass line will be built between Procter's Creek & Five Mile Point; work will be continued on the Arrowhead & Kootenay Lake branch; the spur lines branching off from the West Robson-Midway line will be completed; a branch may be built in the Slocan district to reach Kaslo; & the Vancouver & Lulu Island line will be built. This is all the construction that can now be spoken of with any definiteness, but in the aggregate it embraces a considerable amount of work. After putting through such a heavy undertaking as the line from West Robson to Midway, the Company may reasonably be expected to proceed cautiously for a year or two. The programme of betterments, etc., detailed in our last issue calls for heavy expenditure & the Company will, as usual, be a very large purchaser of supplies this year, altogether outside its vast ordinary requirements for the maintenance & operation of its system. The magnitude of the Co.'s operations is shown by the figures given on pg. 71, by which it will be seen that \$4,726,607.38 were expended last year in surveys, construction & betterments. Adding to this the expenditure during the year on the West Robson Midway extension, the figures for which are given separately, by it being a leased line, & which amounted to \$2,320,470.16, makes a total for the year of \$7,047,077.54.

Demagogism in British Columbia.

Jos. Martin, who was recently called on by the Lieutenant-Governor of British Columbia to form a Government, has made a statement of policy from which the following is extracted: "The Government intends to adopt the principle of Government ownership of railways, & to arrange for the construction of a railway first-class in every respect from the Coast to Kootenay, say to Midway, to run on the south side of the Fraser River, & through the Hope mountains. When constructed this railway will be operated by a commission, so as not to come under political influence. At present the C.P.R. controls the main part of the Kootenay territory. It will, of course, be obliged to provide satisfactory connections & joint rates. At present the C.P.R. policy is to divert this trade to Winnipeg & Montreal. We take no stock whatever in the suggestion that a road through the Hope mountains is not practicable. The Victoria & Vancouver railway bridge will be erected over the Fraser River at or near New Westminster, by means of which it is hoped that both the Great Northern & Northern Pacific railways may be induced to run their trains into Vancouver City."

It is evident that Martin is trying in British Columbia the same demagogic methods that he used in Manitoba some ten or twelve years ago, & which, though temporarily successful, ultimately resulted in his complete collapse in the latter Province & led him to seek new fields for the exercise of his peculiar talents. The people of the Coast cities are naturally anxious to secure more direct communication with the Boundary Creek district than at present exists, & the reference to a Government line from the Coast is merely a vote-catching device. If such a line is practical, at anything like reasonable cost, & if it presented a reasonable certainty of securing a paying traffic it is not likely that the C.P.R. would hesitate to build it, or failing that Company, that others would undertake the work as a business proposition. When Martin became Attorney-General of British Columbia last year, there was a contract in existence with MacKenzie, Mann & Co., for the building of this line, but he induced his colleagues to repudiate the arrangement. The idea of Martin appointing an independent commission is amusing to those who know his character & his methods. The Fraser River bridge is another vote-catching proposition.

The participation of Martin in public affairs

in British Columbia is a standing menace to the reasonable rights of capital invested in that Province, & we have no hesitation in saying that until the people there express clearly their want of confidence in him & their determination not to allow him to dominate Provincial politics, it will be unwise for anyone to invest a dollar in any enterprise which may be affected by legislation by the British Columbia Legislature, or by the executive acts of the Provincial Government. The present is undoubtedly a time when the better elements of both parties should unite to rescue the Province from the rule of a demagogue & a wrecker, who has no regard for private or public rights which may stand in his way & one of whose first official acts when he became Attorney-General of Manitoba was to force through the Legislature a measure cancelling contracts legally entered into by the preceding government, & taking away from the injured contractors the right of appeal to the courts to decide whether they were entitled to damages. The step from such legislation to repudiation of the public debt, or in fact anything of a similarly outrageous nature, is a very short one.

Suspension of Coasting Regulations.

When the vessel owners' deputation waited on the Dominion Government in Ottawa on Nov. 22 last in reference to the suspension of the coasting regulations between Fort William & Port Arthur & other ports in Canada, the Premier practically admitted that the order-in-council complained of had been passed under a misapprehension of facts, & promised that similar action would not be repeated, but that if anything was to be done along the same line it would be by way of amendment to the coasting laws, & he also said that an early announcement would be made as to the Government's intention on this point. But no announcement has been made, & as the matter is of vital importance to Canadian vessel owners, & as its continuance in a state of uncertainty is having a deterrent effect on ship building, the time seems to have arrived when an answer should be pressed for.

The order-in-council referred to was passed on the following recommendation:

"On a report dated Oct. 14, 1899, from the Minister of Finance, stating that the British & Canadian shipping on the lakes above Montreal appears to be insufficient at the present time for moving the grain cargoes to be transported from Fort William to Ontario lake ports, and thence by rail through Canada to tide water. That under the coasting laws, United States vessels are not at present permitted to engage in this traffic between two Canadian ports. That for want of available British & Canadian tonnage a large portion of this grain traffic is likely to be carried from Fort William to Buffalo, & thence by United States railways or vessels to the sea-board. That it is desirable to promote the movement of the said traffic along Canadian routes to the sea-board, & to assist the building up of Canadian shipping on the lakes by encourag-

ing the permanent movement of the grain traffic through Canadian channels. The Minister therefore recommends, pending an increase in the Lake Shipping now entitled to participate in the coasting trade, that vessels of the United States be permitted to carry cargoes between Fort William or Port Arthur, Ont., & any other port in Canada, either way, during the remainder of the present year (1899) on the same terms & conditions as are applicable to Canadian vessels, forbearing to institute suits for penalties or forfeitures on account of the nationality of such vessels while so employed. The committee submit the foregoing recommendation for Your Excellency's approval."

The deputation which waited on the Government clearly established that the preambles of the recommendation above quoted were not statements of fact, that there was not an insufficiency of Canadian shipping to carry the grain from Thunder Bay & that there was therefore no consequent danger of the diversion of the grain traffic to U.S. routes.

It was never contended for a moment that there was any scarcity of shipping to carry goods from Georgian Bay ports, etc., to Thunder Bay, yet the order-in-council threw in as an extra concession to U.S. vessels the privilege of carrying cargoes "either way," thus depriving the C.P.R. upper lake steamships, the Beatty line & other boats, of traffic to which they were legitimately entitled. But there is another phase of the question which is of even more serious importance. The Act respecting the Coasting Trade of Canada, passed in 1886, provides as follows:

"2. No goods or passengers shall be carried by water, from one port of Canada to another, except in British ships; and if any goods or passengers are so carried, as aforesaid, contrary to this Act, the master of the ship or vessel so carrying the same, shall incur a penalty of \$400, & any goods so carried shall be forfeited, as smuggled; & such ship or vessel may be detained by the collector of customs, at any port or place to which such goods or passengers are brought, until such penalty is paid, or security for the payment thereof given to his satisfaction, & until such goods are delivered up to him, to be dealt with as goods forfeited under the provisions of the Customs Act."

"5. The Governor-in-Council may, from time to time, declare that the foregoing provisions of this Act shall not apply to the ships or vessels of any foreign country in which British ships are admitted to the coasting trade of such country, & to carry goods & passengers from one port or place to another, in such country."

Section 5 above quoted provides that the Governor-in-Council may suspend the operations of section 2 as regards the ships of any foreign country which admits British ships to its coasting trade. The United States does not admit British ships to its coasting trade, consequently the Government had no authority to pass the order-in-council in question, &

it was undoubtedly ultra vires. Such absolute defiance of the statute law is too grave to receive merely a passing notice, & the seriousness of passing an order-in-council for which there is no legal authority, & on the contrary, against which there is a distinct parliamentary prohibition, should be so impressed that neither the present nor any succeeding government will attempt anything of the sort in future. It would be bad enough for vessel owners to suffer from the results of a legal act on the part of the Government, it is much worse when the act is unquestionably illegal, & certainly a most dangerous precedent has been created.

In this connection it is interesting to turn to the report of the Department of Marine & Fisheries for the past fiscal year, in which the following will be found under the head of "Coasting Trade of Canada":

"By the provisions of chap. 83, Consolidated Statutes of Canada, being an Act respecting the Coasting Trade of Canada, no goods or passengers can be carried by water from one port in Canada to another except in British ships, but the Governor-in-Council may, from time to time, declare that the Act shall not apply to ships or vessels of any foreign country in which British ships are admitted to the coasting trade of such country, & to carry goods & passengers from one port or place to another in such country. The Parliament of Canada was empowered to pass the Act alluded to under the provisions of the Imperial Act, 32 Vic., chap. 11, intitled: 'An Act for amending the Law relating to the Coasting Trade & Merchant Shipping in British Possessions,' which came into operation in this country on its proclamation by the Governor-General on Oct. 23, 1869. It was ascertained that the following countries, viz., Italy, Germany, the Netherlands, Sweden & Norway, Austro-Hungary, Denmark, Belgium, & the Argentine Republic, allowed British ships or vessels to participate in their coasting trade on the same footing as their own national vessels—the ships of Italy by order-in-council of Aug. 13, 1873; those of Germany by order-in-council of May 14, 1874; those of the Netherlands by order-in-council of Sept. 9, 1874; those of Sweden & Norway by order-in-council of Nov. 5, 1874; those of Austro-Hungary by order-in-council of June 1, 1876; those of Denmark by order-in-council of Jan. 25, 1877; those of Belgium by order-in-council of Sept. 30, 1879; & those of the Argentine Republic by order-in-council of May 18, 1881, were admitted to the coasting trade of Canada."

Yet in face of these facts, which must have been known to the Minister of Marine, & should have been known to every member of the Government, U.S. vessels were given a privilege from which the coasting laws expressly prohibit them, & in return for which Canada receives no reciprocal advantage whatever. The more the matter is looked into the more humiliating & indefensible does it appear.



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The effect of a possible repetition of the suspension was put very clearly at the recent banquet of the Collingwood Board of Trade by J. J. Long, who is largely interested in the Dry Dock & Steel Shipbuilding Co. there. He said: "I hope the Government will see that henceforth U.S. vessels shall be excluded from coasting privileges in Canadian waters, which privileges are absolutely refused Canadian vessels in U.S. waters. If this is not done there is no particular use for our shipyard. We only want fair play. If they will throw their ports open, we will throw ours open. But we will not give them privileges they refuse to us."

The Intercolonial Management.

It is said on pretty good authority that some months since a number of Liberal members of Parliament from Quebec & the Maritime Provinces, presented the Minister of Railways with a written demand for the removal of General Manager Pottinger & two other prominent officials of the I.C.R. Mr. Blair has stood off the spoilsmen so far, but it is now said that in view of the near approach of the general elections the demand is being renewed, & that it is being pressed so vigorously that the Minister may feel compelled to yield. It is even asserted that Mr. Pottinger's resignation has been tendered, to take effect May 1, & that he will be succeeded by Mr. Mitchell, who built the Drummond County Ry. It is to be hoped that Mr. Blair will not give in. If changes in the I.C.R. management should become necessary for business reasons, let them be made, but not because they are demanded by politicians who may be exasperated because they cannot use the officials for party purposes regardless of the interests of the railway. The wire-pulling in connection with the management of the Canadian Government railways is a subject well worthy the careful consideration of those who argue in favor of Government ownership. From its perpetration in connection with the general railway systems of Canada, the people may well pray to be long spared.

Coke for Locomotives.

In his last annual report, President Tuttle, of the Boston & Maine, says:—"The need of a more cleanly substitute for bituminous coal as fuel for passenger locomotives, & one that will minimise the present risk of fires from locomotive sparks thrown upon property adjacent to the roadway, has long been felt. To use anthracite coal has, until recently, been the only alternative; but this, while much more expensive, is difficult to use under ordinary conditions, & is, on the whole, far from satisfactory. Within the past few months the New England Gas & Coke Co., whose works are near this company's tracks in Everett, commenced the production of coke of high grade, which was offered us in such quantities & upon such favorable terms that the experiment of its extensive use in passenger locomotives was at once undertaken. One hundred passenger & switching locomotives are now being regularly & exclusively fired with coke, & the results have been so satisfactory in every detail that its use is to be extended to a larger part of the passenger service as rapidly as the slight changes necessary thereto can be made. Experience has demonstrated that its cost will not exceed greatly, if at all, that of bituminous coal, while its general superiority in steam-producing qualities & its freedom from smoke, dust, cinders & sparks justify the belief that the extent of its introduction on other parts of the B. & M. system will be limited only by the quantity the manufacturers can supply."

The railway & express companies doing business in Buffalo are reported to have subscribed \$300,000 to the capital stock of the Pan-American Exposition.

Railway Operating Matters.

The Northern Pacific station agents are now required to wear uniform caps. The passenger conductors & brakemen now wear uniforms of blue cloth with gilt buttons.

The C.P.R. has voluntarily increased the wages of the machinists employed in its erecting shops at Toronto Jct. from 8 to 12%, according to the individual ability of the workmen.

The G.T.R. management has issued instructions, taking effect April 1, that section foremen on the Co.'s lines in Canada, & track laborers at present receiving \$1 per day, will receive an increase of 10c a day.

The G.T.R. has extended the run of some of the passenger conductors. Heretofore they ran from Montreal to Kingston & from Kingston to Toronto. Under the new regulations they run through between Montreal & Toronto without change.

A rumor that the G.T.R. contemplated transferring the round-house & car shops from Belleville & the round-house from Brockville to Gananoque, & making the latter the terminal point of the runs between Montreal & Toronto, is declared to be entirely unfounded.

The Moncton, N.B., Transcript, the Dominion Government organ there, recently announced that the Minister of Railways had authorized General Manager Pottinger, of the I.C.R., to advance track foremen's wages from \$1.60 to \$1.65 a day, & trackmen from \$1.15 to \$1.20 a day.

An order has been issued by the Southern Ry., applicable in South Carolina & Georgia, prohibiting the use of cigarettes by employees, & forbidding the employment in future of anyone who smokes cigarettes. The order applies to all departments, & it is stated that it will be extended to other divisions.

On the C.P.R. lines east of Fort William yellow has been adopted as the standard caution signal, & all the interlocking plants have been equipped with it. The Manager informs us that the color is giving satisfaction, & that the question of adopting green as the clear or proceed signal, instead of white, is being considered.

An order was recently issued by General Superintendent Leonard, of the Ontario & Quebec division of the C.P.R., notifying the engineers & firemen who run the large Mogul engines of an advance of wages, to engineers of 15%, & to firemen 20%. This action of the C.P.R. is purely voluntary, as the wage scale is fixed by an agreement, which does not expire until May 1, 1901.

The Erie Ry. Co. has inaugurated the position of a passenger trainmaster. "He will be expected to ride on the passenger trains on the Ohio division & keep a sharp eye on all the service, making sure that it is up to the standard. He will see that station agents have proper care for the comfort of the passengers, & also that the trains are not delayed by slow handling of baggage, & in general aim to give the public a better service."

Steel ties on the Mexican Southern Railway are said to have given great satisfaction, & they will be adopted by the entire line, 228 miles long. They have been used for 8 years on 141 miles of the line. They are of pressed steel, & are 5 ft. 5 ins. long, the track being 3 ft. gauge, and the weight of the rail 50 lbs. a yard. The tie is an inverted trough with flaring sides. The rail fastening consists of a U-bolt passing up through the tie from underneath the clips. Steel ties are not used on bridges or at switches, nor around shops & roundhouses. Before laying, the ties are coated heavily with tar to prevent oxidation.

Freight Traffic Matters.

The first C.P.R. car shipped direct from a point on that line in Kootenay to Spokane, Wash., arrived in the latter place at the end of Feb., laden with coal from the Crow's Nest coal mines. The car was started from Fernie, B.C., on the C.P.R. At South Junction, a little town at the lower end of Kootenay Lake, the car was transferred to the Kootenay Valley Ry., & forwarded to Bonner's Ferry. From Bonner's Ferry it was taken to Spokane over the Great Northern Ry.

In a recent issue we mentioned that the Alberta Railway & Coal Co. had established an agency at Nelson, B.C., & would ship coal there from Lethbridge over the Crow's Nest Pass Ry. We understand that the Co. sells considerable coal at Nelson & other points in B.C., at its usual prices, notwithstanding the competition it meets there, & the fact that the Crow's Nest Pass Coal Co.'s product has a much shorter haul. All through north-west Canada & in the western States the Lethbridge coal is very popular for domestic purposes, mainly owing to its cleanness & non-friability.

E. A. Smyth, President of the Pelzer Manufacturing Co., Pelzer, S.C., says in a recent letter to the press: "The Pelzer Co. is a large shipper of export cottons, & to-day we are shipping 5 carloads of sheetings & drills to China, & as usual with our transcontinental shipments, these goods are routed by the buyers by the most direct line to Canada, then by the C.P.R. to Vancouver, & by its steamship line to China. It is perhaps not altogether strange, under all the circumstances, that while there are three railroad lines in the U.S. across the continent, & with steamship lines from San Francisco, the C.P.R. & its steamship line bag all this business. It is a fact, however, that from mills in South Carolina goods for China go first to Canada & thence across the continent."

The new commodity rates issued by the railway companies came into force Mar. 1. The schedules are those prepared for winter before the decision was taken in Nov. last to abolish these favours to manufacturers & distributors altogether. Though somewhat higher than those in force last winter, the rates are better for the shipper than the rates prevailing all winter. With regard to iron, at one point, to which the rate existing a year ago was 12c per 100 lbs. on less than carloads, & 10c per 100 lbs. on carloads, the new rate is 16c on less than carloads & 13c on carloads, against 19c & 15c respectively, under the rates issued in Nov. Here is an advance on the old rates of last year of 3c to 4c per 100 lbs., but a decrease of 2c to 3c compared with the Nov. rates. Other instances might be cited which show the same proportionate increases & decreases, while an instance here & there is met with where the rate is the same as a year ago. The new rates apply to the same particular iron commodities as enjoyed the special rates prior to Nov. last.

Passenger Traffic Matters.

The C.P.R. has reduced passenger fares on all its branches in Manitoba from 4c. to 3c. a mile, making them the same as on the main line there. It is expected that when the Manitoba & Northwestern Ry. is taken over by the C.P.R. a similar reduction will be made.

On Mar. 20, there went into force, as the result on the recent agreement between the trunk lines & transcontinental railways, a marked advance in 2nd-class passenger rates to the Pacific coast. The advance applies to both the G.T.R. & the Canadian Pacific. Up to Mar. 17, 2nd-class tickets from Montreal to Vancouver were \$47.50, now they are \$62.40.

The rates to all Pacific coast points have been advanced in the same proportion. The advance to intermediate points is not so great. For example, tickets for Nelson that cost \$45.50, are now issued at \$52.55.

Here is the position of the Grand Trunk with regard to its observance of the joint passenger agreement as enunciated by General Passenger Agent Davis in a communication to the C.P.R.:—"We will not pay any commission at all, except as a participation in the Trunk Line immigrant clearing house, under their rules, but not as a separate or independent payment, & except such commissions on steamship business westerly through what are known as St. Lawrence ports, including Portland, as may from time to time be understood & agreed between your company & ours, if you so desire."

SHIPPING MATTERS.

The Muskoka Navigation Company.

This Co. is making the following additions & improvements to its fleet:—

A boat is being built specially adapted for side trip passenger business, dimensions 100 ft. in length & 17 ft. in breadth, to be of the composite type, with fore & aft compound condensing engines. The Polson Iron Works are supplying the steel frame, boiler & engine. The boat will be ready for the tourist business this year, & is intended to connect with the Medora, Nipissing & Kenozhia at Port Carling, taking passengers to Bala, Rosseau, etc., & back, while the larger boats are making the through daily trips north & south.

The str. Nipissing is having steel spools fitted to her sides to steady her, & also to enable her to carry the pilot house & texas upon the awning deck, thus making room on the promenade deck for a gentleman's cabin, where the Captain's room formerly stood. The awning deck is being both lengthened & widened, the railway around the promenade deck is being moved farther out, & will be enclosed by wire netting.

The str. Oriole's cabin work has undergone some changes & improvements, especially in the matter of windows, which have been greatly enlarged.

The str. Ahmic will be refitted, improved, & made more attractive for the use of private parties.

The other five boats, including the Wenonah & Wanita, on the Magnetawan route, are all receiving some minor improvements as well as being repainted & refitted generally.

Navigation will probably not open much before the end of April this year. Last year it opened on April 27. In 1898 it opened unusually early, about April 8, which was the second earliest opening on record, the earliest being on April 1, 1878.

The Co. has just issued an illustrated booklet about the Muskoka Lake region, which contains a number of half-tone views of its charming scenery.

Red River Navigation Improvements.—A contract for the masonry work of the lock & dam to be built at the foot of St. Andrew's Rapids, Red River, Man., has been awarded to T. Kelly, of Winnipeg. The work includes the construction of a concrete & granite stone-faced dam, with 7 concrete piers & 2 abutments, with all the excavating & cofferdamming connected with it; the building of a lift-lock, with excavation & refilling; excavation for upper and lower entrances, with embankments & slope protection; construction of guide & mooring piers of cribwork on each side of the channel, & some stone bank protection & levelling of ground. The movable portion of the dam, the steel service bridge, the lock gates & working apparatus will form a separate contract.

It is said that Mr. Petersen, who is already largely interested in coal traffic between Nova Scotia & Montreal by turret steamers, is contemplating the establishment of a line of whaleback or turret grain steamers from Fort William direct to Liverpool by the St. Lawrence route. Mr. Petersen visited Canada some time ago & went to the west with Wm. Mackenzie, of Mackenzie, Mann & Co.

It is said that President J. J. Hill, of the Great Northern Ry., U.S.A., has organized a corporation known as the Eastern Ship-building Co., for the purpose of building large steamers to be run in the trans-Pacific service, that the Co. has purchased an old shipyard on the Thames river, at New London, Conn., where whalers were built many years ago, & that it is expected that contracts for the steel plate for the new steamers will soon be let.

At the recent annual meeting of the Canadian Press Association President Dingman said: "I preach to you the duty of talking up our country. We might even brag of it. The press, by zealously utilizing opportunities to enlarge upon Canada's attractions, can infuse in our own population a strong sentiment on the subject, & through existing ties abroad help to entice a greater flow of visitors. To realize the utmost advantage from this source, however, we need the fast Atlantic service, & the statement may be hazarded that Canada would profit enough from the flow of tourist travel alone—that is only one item of advantage—through our country by the aid of such a service, to more than pay for the subsidy. Further indications seem to be narrowing down to the C.P.R. as the one, if not the only, corporation adapted to execute such a project with the most credit to Canada, & with the maximum of satisfactory results. Why should not the press unite to urge this solution of the fast Atlantic problem?"

War Ships on the Great Lakes.

A report recently sent to the U.S. Congress by Secretary Hay, shows the position taken by the U.S. Executive on this matter, which is well worthy of careful consideration, not only by Canadian shipping interests, but by Canadians generally, so that public opinion on the question may be made known to the Dominion Government. Mr. Hay's report says:—

"An arrangement was reached between the governments of Great Britain & the U. S. on May 30, 1898, for the creation of a high joint commission, to which should be referred for settlement various pending questions be-

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tween the U.S. & Canada, among which was a revision of the agreement of 1817 respecting naval vessels on the lakes. Instructions given to the American commissioners on the subject referred to respecting the view of the Government of the U.S., were that it was desirable to secure a declaration or recognition that it was not contrary to the true spirit & interest of the arrangement of 1817 to build vessels of war on the Great Lakes or in its ports, provided they were not to be used or maintained upon those lakes. It was held that the evident meaning of the arrangement, especially when received in the light of the correspondence leading up to it, was that only such named vessels as described should thenceforth be maintained in these waters.

"In 1817 the Great Lakes were independent inland waters. Lake Ontario was shut up by the rapids of the St. Lawrence River & Niagara; the lakes above Lake Erie were shut in by the rapids of the St. Clair River, & Lake Superior in turn was separated by the rapids of Sault Ste. Marie. There was no navigable connection between them & the ocean. Under such circumstances, to build & arm vessels on the lakes meant 'to maintain them there,' and to use them for no other purpose than as part of the permanent armament. The language of the treaty, therefore, was not improper at the time to convey the idea intended. Moreover, at the time of making the arrangement, the region of the Great Lakes was in a large measure an uninhabited wilderness. To-day the lakes are highways for enormous traffic & their ports are great centres of manufacture & industry, & afford to the U.S. facilities not dreamed of in 1817. These lakes have among other things peculiar advantages for the construction of certain classes of war vessels, & their facilities in this respect are capable of large extension & development, which in the future may be of inestimable value to the U.S. For these reasons the Government regards it as entirely consonant with the spirit of the arrangement of 1817, to use those naval facilities, & to do so upon a full understanding with Great Britain that its building of war vessels on the lakes is in no way hostile to the arrangement or intended to increase the permanent armament to be maintained there.

"The American members of the commission were therefore instructed to secure some arrangement whereby under proper conditions such vessels should be constructed & passed through the Canadian canals to the ports of the U.S. on the Atlantic Ocean. It was likewise held that a proper construction of the treaty did not prohibit the maintenance on the lakes of vessels properly equipped for the purpose of training seamen & reserves in the middle states, & that the employment of a proper training ship is not necessarily hostile to the spirit of the treaty, & should be so declared. It is understood that some satisfactory progress was made toward the attainment of these ends, but the labors of the commissioners have been suspended without reaching a definite result."

The Conners Syndicate.

For the past two months a force of draughtsmen has been employed in Montreal upon the plans for the elevator to be erected on Windmill Point, Montreal, & it is expected that early in April the completed plans will be submitted to the Montreal Harbor Commissioners & to the Dominion Government for approval. J. L. Record, of the Barnett & Record Co., Minneapolis, acting as engineer, has designed the structure, & R. A. Waite, of Buffalo, is acting as consulting architect. The contract for construction has been given to J. Stewart & Co., of St. Louis, who have given out the first sub-contract for material,

2,300 hardwood piles to be delivered on Windmill Point between April 15 & the end of spring. It is understood the Syndicate will build a large elevator at Port Colborne for transhipment purposes, but when this will be gone on with, will doubtless depend on the rapidity with which the Dominion Dept. of Public Works proceeds with the Port Colborne harbor.

It is said that the Syndicate has acquired the charter of the Canadian Inland Transportation Co., which was obtained last session of the Dominion Parliament, by W. Christie, & J. K. Osborne, of Toronto; A. Lumsden & J. W. McRae, of Ottawa; & Senator Forget, of Montreal. The Co. is empowered to issue capital stock to the amount of \$2,000,000, & the charter gives very extensive powers, including the construction & operation of vessels between ports in Canada, & between Canadian ports & those of any other country, the carrying on of the businesses of elevating grain, of common carriers, of forwarders, wharfingers, warehousemen & ship-builders. The Co. has also power to operate wharves, docks, terminal harbors, etc., to carry on lightering & wrecking business, to construct tramways not exceeding 5 miles in length, & such telegraph & telephone lines as may be required for the purposes of the Co., & to acquire the lines or other companies having similar objects. Notice has been given that application will be made to Parliament this session to amend the act of incorporation by increasing the capital stock, by changing the head office of the Co., & by allowing the Co. to acquire stock in other companies, & for other purposes. It is said the capital will be increased to \$4,000,000.

C. I. de Sola, of Montreal, has left for England & the continent, his journey, it is said, being partly in connection with the building of several steel vessels for the Conners Syndicate.

Maritime Provinces & Newfoundland.

The Yarmouth Steamship Co.'s str. Monticello has resumed her trips between St. John & Yarmouth.

The Magdalen Island Steamship Co. has been incorporated by Dominion letters patent with a capital of \$100,000, the incorporators being R. J. Leslie, of Halifax, & others.

At the annual meeting of the Yarmouth Steamship Co., Feb. 22, a dividend of 3% was declared. R. Caie, of Yarmouth, was elected President; D. MacPherson, Halifax, Vice-President & Manager; W. A. Chase, Sec.-Treas.

The Yarmouth Steamship Co. is applying to the Dominion Parliament to amend its act of incorporation by increasing the number of directors from 3 to 5, & by allowing the directors to appoint a manager instead of a managing director, also that the manager may or may not be a director or shareholder.

Province of Quebec Shipping.

It is announced that the Department of Marine will place 32 additional buoys in the channel between Montreal & Quebec.

At a recent meeting of the Montreal Harbor Board the Mayor proposed the use of an ice boat to open up the river earlier in the season.

The Montreal Harbor Commissioners have authorized the expenditure of about \$550,000 in harbor improvements this year. At a meeting, Mar. 19, it was decided to go on with the work opposite Bonsecours market, & between the new high level pier already built & the Victoria pier; comprising the shore wharf, 750 ft. in length between the two piers; the flood protection wall between Jacques Cartier

Square & the ramp at Berri St., & the widening of Commissioners St. opposite Bonsecours Market. The estimated cost is \$120,000. At a previous meeting they authorized the completion of the part of the harbor enlargement works between the entrance of the Lachine Canal & the Custom House comprising the high level shore wharf, 1,000 ft. in length, between the entrance to the canal & the new pier nearest the canal; the pier itself of 1,000 ft. in length by 300 ft. in width; the continuation of the flood protection wall from the part already built to Port St., & the widening of Common St. between the harbor office & Port St. The estimated cost of carrying out these works from their present stage to completion is \$425,000.

Ontario & the Great Lakes.

The name of the Dry Dock & Wrecking Co., Ltd., of Collingwood, has been changed to the Ship Building, Dry Dock & Wrecking Co., of Collingwood, Ltd.

Capt. Jas. Foote & Engineer Munro have gone to England for the purpose, it is said, of purchasing vessels to be used in carrying ore from the Algoma Central Ry.'s terminal at Michipocoton harbor.

The Northern Navigation Co.'s captains for this year will be Campbell, Bassett, Foote, Walton, Wilson, LaFrance, Jacques & Odonnell. Some of them may be changed from the steamers they commanded last year to others.

The Town Council & Board of Trade of Collingwood have approved of amended plans for the deep water channel, which provide for a channel 250 ft. wide, with a depth of 20 ft. at low water. It is said a sum for this work will be placed in the Dominion supplementary estimates.

A recent press despatch stated that Capt. Pierce, of Portsmouth, had completed a model of the old str. Geneva for the Rathbun Co., of Deseronto, & that that Co. would build a boat on her lines to ply on the upper part of the Bay of Quinte. We are informed that the Rathbun Co. contemplated doing this, but has abandoned the idea.

Tourists' rates on the Great Lakes are to be advanced. The advance does not affect rates on the regular traffic between ports where railway connections are important factors. But on round-trip & one-way tickets between Buffalo & Duluth, Detroit & Mackinaw, & Chicago & "the Soo" there has been an advance of \$1 & 50c. respectively.

At the annual meeting of the Rideau Navigation Co., at Kingston, Feb. 24, the following were elected:—President, J. Swift; Vice-President, Geo. F. Kidd, Ottawa; Sec.-Treas., J. F. Lesslie; Managing Director, Capt. D. Noonan; Directors, Capt. D. Noonan, H. W. Wilson & J. Swift. The directors discussed the question of building hotels at Rideau Lake & Jones' Falls, but nothing definite was decided upon.

Statements emanating from Owen Sound to the effect that some \$30,000 will be expended there this winter on the C.P.R. Upper Lake steamships are altogether inaccurate. The work in hand differs very little from what is done every winter. The Athabasca is getting a new smoke-stack, & the Alberta is having a few plates renewed in her main deck, & some alterations are being made in the steerage accommodation of the Manitoba.

The Dry Dock & Steel Ship Building Co., of Collingwood, has not yet appointed a manager, but it is probable that the position will be filled early in April. We are advised that the ship-building plant to be put in by the Co., will be the best that can be obtained, & strictly up-to-date. It is expected that the erection of the buildings will be commenced

during Mar., & that the plant will be in shape to commence work about June 1. The Co. has not definitely closed any contracts for building vessels, but has several in view.

Certain changes in the navigation rules of the St. Mary's River, suggested by Capt. A. B. Davis, who is in charge of the U.S. revenue cutter patrol service on the river, were approved by the vessel owners, & have been promulgated by the Secretary of War. The changes are not of a radical kind, but it would be well for all ship masters to secure from collectors of customs, or from Capt. A. B. Davis, who is located at Milwaukee during the winter, a copy of the latest government circular on the subject, which contains the rules in full as revised.—Marine Review.

Deputations from the town councils of Port Elgin, Kincardine & Southampton met at Stratford recently with reference to securing steamboat service. Goderich was not represented. It is understood they recommended the adoption of a plan for paying a subsidy by each town to some suitable boat, based on the population of the several towns interested, as follows:—Sarnia 7,000, Goderich 4,500, Kincardine 2,500, Port Elgin 1,600, & Southampton 1,600, the subsidy to be at the rate of 6c. per head of the population, to be paid only for round trips actually made & when the boat calls, the basis to be 16 trips during the season.

The C.P.R. Upper Lake steamers will be officered as follows this year:—SS. Manitoba, Capt., E. B. Anderson; 1st mate, A. McNabb; 2nd mate, J. Currie; chief engineer,

W. Lewis; 2nd engineer, J. Greig; purser, W. Bethune; steward, J. H. Brown. SS. Athabasca, Capt., George McDougall; 1st mate, M. McPhee; 2nd mate, T. Benwell; chief engineer, W. Lockerbie; 2nd engineer, J. W. Davey; purser, J. MacEdward; steward, Jas. M. Gardhouse. SS. Alberta, Capt., J. McAllister; 1st mate, L. Pyette; 2nd mate, Alex. Brown; chief engineer, Angus Cameron; 2nd engineer, Chas. Butterworth; purser, J. E. Laine; steward, J. C. Brown.

British Columbia Shipping.

The str. North Vancouver, which will run between Vancouver, North Vancouver & Moodyville, has been launched in Vancouver. She is 81 ft. over all, 20 ft. beam, displacement 81 tons. The engines will be compound, 200 h.p. She will be on the route about the end of March.

The Canadian Pacific Navigation Co. started its increased service on the Vancouver-Victoria run, Feb. 20, the passenger service being supplied by the str. Charmer, & the freight service by the str. Yosemite. The passenger steamer leaves Victoria at 7 a.m., & leaves Vancouver at 1 p.m.

Several changes have been made on the C.P.R. Co.'s steamers. Capt. Sears, late of the str. Princess Louise, has been appointed to the str. Yosemite; Capt. P. J. Hickey, of the str. Transfer, has been transferred to the str. Princess Louise, on the Westminster-Victoria run, & C. Gardner, a river pilot, has succeeded Capt. Hickey on the str. Transfer on the Westminster-Steveston run.

Yukon and Northern Navigation.

In connection with the owners & operators of the White Pass & Yukon route & the upper Yukon transportation service of the Canadian Development Co., the Canadian Pacific Navigation Co. has issued a circular, whereby the reduced traffic rates for through business to the North are brought into force. The tariff affects a general reduction of rates over those of last year, ranging from 40 to 60%, & with an elimination of the old system of weight & measurement ship's option, the rates now quoted being absolutely fixed on a weight basis with a liberal allowance for displacement. If goods are carefully packed & prepared for transit there seems to be no reason why all classes of general merchandise should not secure the flat-weight rate.

The tariff itself is as follows: "Shipments of 5 tons or under: Through rate, \$145 a ton, weight—provided the total measurement of each shipment does not exceed an allowance of 55 cu. ft. to each 2,000 lbs. weight, all excess measurement over such allowance to be charged for in addition to the through rate at \$1 a cu. ft. Shipments of over 5 tons: Through rate, \$125 a ton weight—provided the total measurement of each shipment does not exceed an allowance of 55 cu. ft. to each 2,000 lbs. weight, all excess measurement over such allowance to be charged for in addition to the through rate, at \$1 a cu. ft. Cattle & horses, in lots of not less than 14, \$85 each. Shipments under this tariff will be carried subject to the conditions of the Co.'s regular bill of lading, & will also be subject to the following general conditions: Single articles of freight

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weighing over 2,000 lbs., or timbers over 35 ft. in length, will be carried only under special arrangement; powder & high explosives, calcium carbide, acids, gasoline & naphtha, will be carried only under special engagement; on all freight of a perishable nature charges must be prepaid in full; on & after Aug. 20, 1900, shipments will only be accepted at owners' risk of delivery during 1900, & the carriers must be fully released from all liability arising out of or occasioned by non-delivery during 1900."

Of the parties to the foregoing agreement, the C.P.N. Co. will this season operate on the northern route, the steamers Amur, Tees & Danube; the White Pass & Yukon route, bring into the agreement the Pacific & Arctic Ry. & Navigation Co., the B.C. Yukon Ry. Co. & the British Yukon M. T. & T. Co., operating the White Pass & Yukon Ry. between Skagway & White Horse Rapids; the Canadian Development Co. is to operate this year the six steamers Columbian, Canadian, Victorian, Australian, Bailey & Anglian.

A Victoria despatch of Mar. 21 says:—A combine was to-day completed by the C.P.R. Co., the White Pass & Yukon Railway Co., & the John Irving Navigation Co., to control the Atlin transportation business during the present season. The through freight rate has been fixed at \$97 a ton on general merchandise, less than 5 ton lots, or \$87 for larger shipments, while the mining machinery rate is \$67, with a limit of measurement.

Port Colborne Harbor Improvements.

The works for improving the Port Colborne entrance of the Welland Canal, for which tenders were recently invited by the Dominion Department of Public Works, comprise the removal of the present side slopes & walls of the Port Colborne basin where directed, & the construction of docking formed by sinking crib work & building upon it a concrete wall with stone filling in rear of it. On the west side the docking will extend from the existing crib work near the supply weir to the Ferry crib, & on the east side from the existing crib work south of the new lock southwards, for a distance to be determined. Cleaning up also of the bottom of the basin & entrance for its entire length & width from the locks to the south end of the west pier, to a depth of 15 ft. near the locks to 16 ft. at the south end of the basin, when there is 14 ft. of water upon the south mitre sill of the new lock, & to a depth of 16 ft. of water at that stage of water from the south end of the basin to near the south end of the west pier, where the excavation will be taken to a greater depth. A strip of rock adjoining the west pier on its east side is to be removed so as to continue the line of the face of the west pier down to the level above stated for the bottom of the entrance at this point. From a line drawn across the entrance from the south end of the west pier to the fourth detached block outwards as far as directed, & in an easterly & westerly direction generally, the rock, or whatever the material may be, is to be removed to the extent necessary to afford a depth of 22 ft. of water when there is 14 ft. of water upon the south mitre sill of the new lock. The west pier is to be extended both southerly & westerly for about 600 ft. in each direction by sinking cribs & building upon them a concrete superstructure. W. G. Thompson, M. Inst. C.E., is the Superintending Engineer.

Richelieu & Ontario Navigation Co.

A. Nuller, of Winchenden, Mass., has been appointed Manager of the Manoir Richelieu, the hotel the Co. is building at Murray Bay. He was formerly in charge of the Algonquin Hotel, St. Andrews, N.B.

It is announced that the Co. has given an order to build a sister steamer to the Toronto, for the Toronto-Prescott run, that she will be 14 ft. longer than the Toronto, will have 208 state rooms, will be ready by June 1, 1901, & will be called the Kingston.

The directors have appointed the following captains for the season of 1900:—The Quebec, L. O. Boucher; the Montreal, L. St. Louis; the Three Rivers, F. St. Louis; the Berthier, C. Gouin; the Laprairie, P. McLean; the Longueuil, T. Jodin; the Saguenay, C. Lapierre; the Canada, J. Dugal; the Carolina, G. Riverin; the Toronto, H. Esford; the Hamilton, A. J. Baker; the Corsican, J. McGrath; the Algerian, D. F. Mills; the Chambly, G. E. Paulet; the Hochelaga, H. Mandeville; the Sorel, A. Berthiaume; the Spartan, H. Grange; the Bohemian, A. Dunlop. The captains of the Terrebonne, Cultivateur, Caspian, Columbian, Riviere du Loup, & Island Queen will be appointed later.

Steamer Signals for Great Lakes.

At the annual meeting of the U.S. Board of Supervising Inspectors of Steam Vessels held in Washington recently, some changes were made in the code of signals between deck & engine room, on steamers of the great lakes. This code was last winter made the subject of extended correspondence between the Supervising Inspector-General & Pickands, Mather & Co., of Cleveland, who control a very large fleet of steam vessels on the lakes. The special point of interest in this correspondence was the so-called strong backing signal, which according to the code was 1 long whistle or 4 bells. But it was pointed out that this signal was ignored & that on nearly all vessels the 2-whistle signal was used when it was desired to back strong. As a result of this discussion the board has provided a new code of signals & here they are side by side with the old code:

NEW CODE.

1 whistle or 1 bell.....Go ahead.
1 whistle or 1 bell.....Stop.
2 whistles or 2 bells.....Back.
4 whistles or 4 bells.....Strong.
4 whistles or 4 bells.....All right.
Two whistles or two bells shall always mean back, irrespective of other signals previously given.

OLD CODE.

1 whistle or bell.....Go ahead.
1 whistle or bell.....Stop.
2 whistles or bells.....Back.
3 whistles or bells.....Check.
1 long whistle or 4 bells.....Strong.
1 long whistle or 4 bells.....All right.
Two whistles or two bells, when the engine is working ahead, will always be a signal to stop & back strong.

In regard to search lights it was resolved by the board that masters, mates & pilots of all vessels be required to exercise due caution in the use of same so as not to throw the rays of the light into the pilot house of passing steamers.

Manufacturers of boiler tubes will hereafter be required to furnish copies of reports of physical tests of every order for tubes to be used in marine boilers, to the boiler maker using the same, & a similar copy to the Supervising Inspector-General, to be filed in his office. No connection between the shell of the boiler & mud drum exceeding 6 ins. in diameter will hereafter be allowed.

Another new rule provides that each steam vessel applying for inspection on & after July 1, 1900, shall be fitted with a bilge pipe connecting by a suitably marked valve with the main bilge pump in the engine room, & each compartment of all steam vessels shall be fitted with a suitable sounding pipe. It is also provided that all double-ended ferry steamers & steamers similarly constructed shall have a

steam whistle both fore & aft of the smoke pipe; or if only one whistle is used, said whistle shall be placed on the side of the smoke pipe, so that the steam, when the whistle is blown, can be seen from either end of the steamer.

Department of Marine Report.

The annual report of the marine branch of the Department of Marine & Fisheries for the year ended June 30, 1899, has been issued. The total expenditure was \$1,020,259.08 against \$782,911.74 for the previous year. In the outside service of the branch 1,907 persons are employed. The expenditure for maintenance of lighthouse & coast service was \$472,751.93, construction \$64,705.63; total \$537,457.56.

The extended coast line of Canada, & numerous bays, inlets, rivers, lakes, harbors & other navigable waters require a large number of buoys, which are maintained at an average cost of \$55 a year. For the year ended June 30, 1899, the service cost \$78,176.93. It is said that the cost of this service is increased in years when new contracts are given for steel signal & other coast buoys. The Chief Engineer points out that the Department has been substituting steel coast buoys for wooden buoys, with favorable results. The districts now buoyed, in all parts of the Dominion, number over 300 & the buoys number over 3,000. A large number of whistling, bell & other iron buoys are maintained along the coasts of the several provinces by Dominion steamers, particularly Nova Scotia, New Brunswick & British Columbia. The cost of this maintenance by the steamers is not charged directly to the buoy service, but is included in the cost of maintenance of steamers which frequently perform the double duty of attending to lighthouses & the coast buoy service on the same trip. In addition to the buoys for marking dangers there are 11 gas buoys below Quebec & 1 spare buoy, also gas works & supply tanks, etc. Two gas buoys are maintained in Pelee Passage, Lake Erie, & 3 in Parry Sound, Ont. The contract for maintaining the buoys & beacons between Montreal & Quebec in the ship channel was cancelled in the spring of 1899. The steam barge Shamrock, which was built for the work by the late contractor, was purchased & officers were appointed who are immediately under instructions from the Department in carrying out the work of buoying the channel. The buoys were increased in number & various changes & improvements were made. Eighteen large steel conical top & ten 3-ft. iron can buoys were constructed & placed in position by the Shamrock. In addition, a number of heavy spar buoys were prepared & put in the ship channel at various points. Several new beacons were erected & old ones improved. Contracts were entered into for the following steel buoys during the year, viz.: 3 bell buoys, 2 whistling buoys, 2 conical buoys & seven can buoys for New Brunswick; 4 whistling buoys, 3 bell buoys, 5 conical buoys & 4 can buoys for Nova Scotia; 4 conical buoys for Quebec, & 6 conical buoys for British Columbia.

The following description is given of the new steamships built for the Department: The Minto is an iron steamer 225 ft. long, breadth, 32 ft. 6 ins., and depth 20 ft. 6 ins.; gross tonnage 1,089, net tonnage 371; indicated h.p. 2,900 and nominal h.p. 216. She is commanded by Capt. A. Finlayson & has a crew of 35 in all. She was built for the winter service between Prince Edward Island & the Mainland. The Stanley has been upon the route in winter since 1887, & a careful examination of her hull showed that it would not be prudent to depend entirely upon her to continue the winter service. Tenders were invited for a new steamer in Great Brit-

ain and the tender of Gourlay Brothers & Co., Dundee, was accepted. The Minto was built according to plans & specifications prepared by M. P. McElhinney, Nautical Adviser of the Department. She was launched July 12, 1899, equipped & made ready for sea on Sept. 13. The Captain, first officer & second engineer, together with 20 men were sent from Charlottetown to Dundee to bring her out. The crew was increased by a few men who signed articles in Dundee. The Minto left Dundee Sept. 14, 1899, & arrived in Charlottetown Sep. 25, having experienced a rough passage in which her good sea-going qualities were proved. The speed attained was 16 knots on her trial trip & 14 at sea. The engines are triple expansion, having cylinders 26, 41 & 65 ins. diameter; the stroke is 39 ins. The vessel has improved corrugated furnaces fitted with force draught which can be used as required. The stern has been specially designed for backing in the ice, with an ice cutter to protect the rudder stock, the rudder is of solid cast steel. The vessel is provided with water ballast tanks in the bottom & trimming tanks forward & aft, & equipped with a special engine & pump for this purpose. Experience has been gained by the service of the Stanley & in designing the new steamer improvements were kept in view. Instead of berths as in the Stanley, 8 state-rooms are provided, with 2 berths & a lounge in each. One specially large stateroom is fitted up with beds & other conveniences. The dining saloon is sufficiently spacious & neatly furnished, upholstered & well lighted with incandescent electric lamps. Part of the saloon is furnished specially for the comfort of ladies, & has the latest improvements in heating apparatus. The main objects, however, have

been to secure strength of hull & powerful engines.

The Brant is a new wooden steamer 100 ft. long over all, 19 ft. in breadth & 8 ft. depth; her tonnage is 141 gross & 57 net. The Brant is commanded by Capt. D. Makinnon, & has a crew of 12 all told. The steamer was built in Charlottetown for a supply steamer for the Prince Edward Island lighthouse service & other work. The hull was built under Lloyd's inspection to class 10 years & the vessel's bottom is sheathed with muntz metal. The engine is of the compound expansion surface condensing type; cylinders, high pressure 14 ins. & low pressure 28 ins., both having a stroke of 22 ins. The Brant was launched June 10, 1899, but was not completed at that period. The machinery, equipment & furnishings were placed on board, which enabled the steamer to enter upon the work of carrying lighthouse supplies during the season of 1899. The total cost is about \$19,000. She is fitted up with good accommodation for the officers & men, she is substantially built & is a very serviceable steamer. Her engines have worked well from her trial trip, giving a speed of 9½ knots per hour with small consumption of coal.

The Shamrock is a steam barge 117 ft. long, 25 ft. in breadth & 9 ft. 7 ins. in depth; her gross tonnage is 237 & net tonnage 161. She has a crew of 12 all told, including U. P. Boucher, who is in charge of the steamer & directs her movements. The sailing captain is S. Savaugau. The Shamrock is used entirely in the buoy service in the ship canal between Montreal & Quebec. She was constructed specially for this service at Quebec, & was launched in 1898. She was purchased in the spring of 1899 for \$21,500, which included equipment & furnishings.

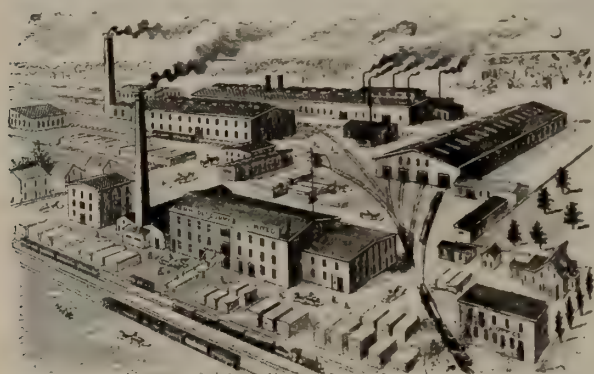
The cost of maintaining the Dominion steamers for the year was \$145,270.75.

The total number of casualties to British & Canadian sea-going vessels reported to the Department, as having occurred in Canadian waters & to Canadian sea-going vessels in waters other than those of Canada, during the year ended June 30, 1899, was 255, representing a tonnage of 88,820 tons register, & the amount of loss, both partial & total, to vessels & cargoes as far as ascertained, was \$542,890. The number of casualties to inland vessels was 15, tonnage 3,861, loss \$106,750. The number of lives reported lost in connection with the casualties was 53.

The number of steamboats reported in the Dominion is 1,427. Of these 112 are new, the gross tonnage being 236,257.93. Owing to the increase of tonnage of steamers, mainly caused by the Yukon trade, & the additional work of inspecting steamers without certificates, not registered in the Dominion, the work of inspection has been increased in most of the divisions. A new inspector of machinery, who is also inspector of hulls, was appointed in British Columbia.

Several attempts were made at Hazel Hill, N.S., where the pigeon loft is now situated, to train & fly some of the birds for use in the Sable Island service. The results were not satisfactory, as a number of pigeons were lost & others returned to the loft in a dying condition. This service will be discontinued.

By the provisions of the Consolidated Statutes, chap. 83, an Act respecting the Coasting Trade of Canada, no goods or passengers can be carried by water from one port in Canada to another except in British ships, but the Governor in Council may, from time to time, declare that the Act shall not



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Manchester Ship Canal Co.'s Elevator, Manchester, Eng.	"	1,500,000 "
Burlington Elevator Co., Peoria, Ill.	"	500,000 "
Canada Atlantic Railway Elevator, Coteau Landing, Que.	"	500,000 "
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apply to ships or vessels of any foreign country in which British ships are admitted to the coasting trade of such country, & to carry goods & passengers from one port or place to another in such country. The Parliament of Canada was empowered to pass the Act alluded to under the provisions of the Imperial Act, 32 Vic., chap. 11, intitled: "An Act for amending the Law relating to the Coasting Trade & Merchant Shipping in British Possessions," which came into operation in this country on its proclamation by the Governor General, Oct. 23, 1869. It was ascertained that the following countries, viz., Italy, Germany, the Netherlands, Sweden and Norway, Austro-Hungary, Denmark, Belgium, & the Argentine Republic, allowed British ships or vessels to participate in their coasting trade on the same footing as their own national vessels, & these countries were by order in council admitted to the coasting trade of Canada.

The hydrographic survey of the Canadian shores of the great lakes has made fair progress during the past season. Mr. Stewart, with his assistants & the str. Bayfield completed the survey of the south shore of Manitoulin Island, making connection with the work done by Capt. Boulton, R.N., in 1884, at the entrance to Georgian Bay. He then surveyed the north-east shore of Lake Huron between Cape Hurd & Lyal Island at the entrance to Stokes Bay. A fair sheet of the work done between False Detour Channel & Duck Islands, Lake Huron, was drafted last winter & forwarded to the Hydrographer of the Admiralty. No new engraved charts of the work done have been issued since my last report. The old Admiralty chart of Lake Erie has been revised and all our recent work engraved thereon. The U.S. Hydrographic Office has issued a very complete new chart of Lake Erie, embodying all our recent survey. During the coming season it is hoped to complete the survey of Lake Huron as far as necessary at present.

Mr. Stewart says in his report—"Stokes Bay is really the only safe harbour on the Canadian shore of Lake Huron from St. Clair River to Tobermory, a distance of 160 miles. It is quite large, the anchorage is both good & safe, and were the beacons replaced by lights it could be made by any ordinary vessel in any weather. I also placed buoys to mark the south end of the shoal off Duck Islands, Lake Huron; the south end of Bears Rump shoal, Georgian Bay; and the entrance to South Bay, Manitoulin Island.

A Canada Atlantic Freighter.

The steel bulk cargo steamer mentioned in our last issue as under construction for the Canada Atlantic Ry., will be of the following dimensions:—Length, forward side of stem to after side of stern post, 245 ft. 6 ins.; length over all, 257 ft.; beam moulded, 43 ft.; depth moulded at side, 25 ft. 6 ins. She will be built with a complete steel upper deck, & with main deck beams fitted, but no deck laid except from the bow to 6 ft. past collision bulkhead, & from 2 ft. forward of fire hold bulkhead to extreme stern of vessel. A steel plated fore-castle deck will extend about 42 ft. aft of stern. A double bottom 4 ft. deep in centre of boat for water ballast will extend from collision bulkhead to engine room bulkhead on frame no. 93, to be divided by centre keelson & solid floors into 6 water tight compartments. The boiler & engine will be in the stern, the boiler on main deck with coal bunker on each side. The engine will be of the vertical triple expansion jet condensing type, with 3 cylinders working on 3 cranks, cylinders to be 17 ins., 28 ins., 46 ins. x 32 ins. stroke, to pass government inspection for a working pressure of 170 lbs. per sq. in., & for a speed of not over 100 revolutions a minute.

There will be 1 main boiler fitted with hot draft, boiler to be 13 ft. 6 ins. mean diameter, by 12 ft. over heads, to have two 50 ins. inside diameter furnaces, combustion chamber separate for each furnace. There will also be a small donkey boiler 5 ft. 6 ins. diameter by 6 ft. long, with 1 furnace. Both boilers to pass government inspection for 170 lbs. working pressure of steam.

The steamer will have 1 mast & 1 hoisting engine for shifting purposes. The captain's office & sleeping room will be on the fore-castle deck aft of pilot house, the cabin below fore-castle deck will have 2 spare rooms & toilet room, mates' & wheelmen's rooms, mates' locker & sitting room for mates & wheelmen. The deck house amidships will contain watchmen's, deck hands', firemen's & lamp room. Deck house aft of boiler house will contain dining room, kitchen, pantry, mess room, steward's, engineer's, & 2nd engineer's rooms, spare state room, toilet room and stairway to 'tween decks.

The hull will be built on the transverse system, with solid channel cross floors, with longitudinals to be run on top of floors supporting the inner bottom, the 2nd longitudinal being intercostalled to shell. The hull plating will be carried up to fore-castle rail forward & to main rail from abreast of boiler house aft. The hull will be of open hearth steel throughout, except the rudder frame, which will be hammered iron forging, & the stern post to be steel casting.

Steam steering gear will be placed in stern. The auxiliaries will include a duplex donkey pump $7\frac{1}{2}$ ins. x $4\frac{1}{2}$ ins. x 10 to feed boiler; a steel plate fan with 6 ins. x 6 ins. vertical engine to furnish air for the hot draft; 2 deck hoisting engines 6 ins. x 8 ins. There will be an electric light plant of 120 lights capacity.

The steamer, which will be called the Ottawa, is expected to be completed early in May.

Notices to Mariners.

The Dominion Department of Marine has issued the following notices:—

No. 6. Feb. 6, Nova Scotia, sunken wreck in Halifax Harbor.

No. 7. Feb. 19, British Columbia, 1. Brocton Ledge beacon lighted; 2. Walker Rock light.

No. 8. Feb. 21, Nova Scotia, shoal in north entrance to Canso Harbor.

No. 9. Feb. 23, British Columbia, 1. Disappearance of Sturgeon Bank beacons; 2. State of Washington, signal station removed from Tatoosh Island to Neah Bay.

The U.S. Hydrographic Office has issued the following notices relating to the Great Lakes:—

No. 201. Mar. 3, Lake St. Clair, 20 ft. channel, lights damaged, caution.

No. 202. Mar. 3, Lake Ontario, St. Lawrence River, Tibbets Point light station, intended alteration in fog signal.

No. 257. Mar. 17, Lake Superior, Wisconsin, Portwing (Flag River), general information.

Canadian Pacific Steamships.

Following is a list of the C.P.R. Co.'s steamships as at Dec. 31, 1899:

Ocean steamships—Empress of China, Empress of Japan, Empress of India, Athenian, Tartar.

Lake steamers—Alberta, Athabasca, Manitoba.

Ferry steamers—Ontario, Michigan.

River steamers—Ogilvie, Hamlin, McConnell, Schwatka, Dalton, Walsh, Dawson, Kootenay, Rossland, Lytton, Kokanee, Slocan, Illicilliwaet, Aberdeen, Trail, Nelson, Moyie, Minto, Wm. Hunter.

Tugs—Columbia, Sandon, Ymir.

CANADA LIFE ASSURANCE CO.

Fifty-third Annual Report.

The applications for assurance during 1899 were 4,176 for \$8,662,924.83, of which 401, for \$695,298, were either declined or not carried out, leaving the actual issue of the year 3,775 policies for \$7,967,626.83. This is the largest amount of business ever transacted by the Company in its history of over half a century, & it is also a matter of satisfaction that the increase is due almost entirely to purely Canadian business, which exceeded that of any other Company doing business in the Dominion. The total business in force now amounts to \$80,229,688.25, under 37,100 policies, being an increase of almost \$5,000,000 over that of a year ago. This is the largest increase ever made by the Company in any one year. The total payments to policy-holders during the year (details of which will be found in the Financial Statement), were \$1,357,350.85, which is \$61,980.40 greater than for the previous year. A careful revaluation of the properties owned by or mortgaged to the Company has been made, not only by our own valuers, but also by independent valuers, & after making all reasonable provision against loss, the assets now stand at \$21,364,052.06, being an increase of \$1,325,244.73 over the amount as reported a year ago.

A valuation of the Company's policy liabilities has been made by the Actuary upon the Actuaries' Table of Mortality & interest at 4 per cent., this being the basis of valuation required by some of the States in which the Company does business. This valuation, which amounts to \$18,964,390.00, has been confirmed by certificate of the Commissioner of Insurance for Michigan. After providing for these & all other liabilities, there is a surplus of \$1,968,712.85, but last year it was decided, on the recommendation of the President, to set aside a special reserve of \$225,000 towards a $3\frac{1}{2}$ per cent. standard. Since then the Dominion Government, recognizing the permanent fall in interest rates, has wisely amended the Insurance Act, so that all companies must now proceed to make provision for placing their policy liabilities upon a $3\frac{1}{2}$ per cent. basis. Until the transition is effected it will be necessary for the companies to apply a considerable percentage of their surplus on old policies in this way. The Directors have, therefore, recommended that an additional sum of \$275,000 be set aside for this purpose, making in all a special reserve of \$500,000 in excess of the Actuaries' 4 per cent. basis. Deducting this amount from the above-mentioned surplus there remains a surplus over all liabilities of \$1,468,712.85. Of this amount it is proposed to credit to policy-holders \$1,381,132.05 as surplus to them, and to shareholders \$87,580.80, out of which dividends for the next five years may be paid.

The Directors, keeping in view the unusually large amounts of profits distributed to policy-holders in the past, & the fact that interest rates have so fallen as to make it imperative that the Canada Life should be placed upon an actuarial valuation basis relatively comparable with that of leading companies in the United States, Australia & Great Britain, have unanimously recommended that at this quinquennial division the permanent interests of the policy-holders would be conserved by declaring a Bonus Addition of $\frac{3}{4}$ of one per cent. per annum, and a slightly less amount upon life policies which have been paid up for a period of ten years. This decision has been arrived at only after the most careful investigation into, & deliberation upon, the many phases of this extremely important matter. It is believed that within the present quinquennial period this decision will be heartily approved by any who may not at present recognize its importance. Indeed

the opinions of two distinguished actuaries, who were independently consulted, would have supported an immediate adoption of the new Government basis of $3\frac{1}{2}$ per cent. upon all business.

It is further recommended that the usual Quinquennial Bonus to Shareholders be dispensed with.

SYNOPSIS OF FINANCIAL STATEMENT.

Premium Income (net).....	\$2,199,262 21
Interest, Rents, etc.....	853,297 52
	<hr/>
	\$3,052,559 73
Payments to Policy-holders.....	\$1,357,350 85
All other payments.....	475,666 28
	<hr/>
	\$1,833,017 14
ASSETS: January 1st, 1900.	
Ledger Assets.....	\$20,365,202 36
Other Assets.....	997,859 70
	<hr/>
TOTAL ASSETS.....	\$21,364,062 06
LIABILITIES:	
Assurance Reserve Fund—Actuaries' 4 per cent.....	\$18,964,390 00
Special Reserve towards $3\frac{1}{2}$ per cent. basis.....	500,000 00
All other liabilities.....	439,959 21
	<hr/>
	\$19,895,349 21
SURPLUS OVER ALL LIABILITIES.....	\$1,468,712 85
	<hr/>
	\$21,364,062 06

At the annual meeting in Toronto, Feb. 28th, the President, Hon. George A. Cox, in moving the adoption of the report, said:—"It is a matter of satisfaction that the new business of the year just closed largely exceeds that of the best year in the Company's history. From every part of the Dominion came these evidences of approval & confidence. While this increased business was to a certain extent due to the fact that new premium rates were to go into effect at the beginning of the year in this & other companies, still the fact that the Canada Life received a much larger volume of new business in the Dominion than any other company is the best evidence of the wisdom of the departures just referred to.

I think it proper, however, to say that it is not my intention, nor of those responsible for the management of the Company to depart from the conservative principles by which it has been so long conducted. I believe in building on foundations that will stand the strain & stress of years. Whether in the securing of business or in making investments, I prefer to look at the matter as it is likely to appear ten, twenty, thirty years hence, & I am content to sacrifice transient success for absolute security, & the permanent welfare of those whose interests are

wrapped up in this institution. At the same time I think we should not be doing our duty if we did not seek to keep the Canada Life thoroughly abreast of the times, both in its agencies & at head office. "Conservative Progress" will, therefore, be our motto.

The most important matter dealt with in the report is the quinquennial investigation. That is always an eventful period, but especially so on this occasion, for the reason that the life companies are now brought face to face with a most serious practical problem, viz., the readjustment of their finances, due to the permanent fall that has taken place in the rate of interest. Many persons who are not familiar with life assurance finance do not realize the important place which interest holds in the foundations of a life company. Without its interest income a life company would soon become insolvent. It is not alone from the premiums, but from the interest as well, that claims must be met, & if interest is likely to fall below what has been assumed, then the security of a company's contracts is endangered. Moreover, the securing of a rate of interest larger than that assumed in a company's calculations is one of its main sources of profit. Hence it is of the highest importance that the margin of interest for profit should be maintained.

I will illustrate in two ways the effect of a fall in the rate of interest. Within a period of twelve years the rate of interest has fallen 2 per cent. Now, taking the assets of a company like the Canada Life at \$21,000,000, this means an annual shrinkage in its interest income of \$420,000, or in five years the accumulated loss would amount to almost \$2,300,000. This clearly demonstrates the effect of a fall in the rate of interest.

My second illustration shows what annual premium would be required to insure a man for \$1,000 at age 30 upon the Whole Life plan, supposing no interest were assumed as procurable. The gross annual premium would be \$32.75, whereas the rate which we now charge for a non-profit policy on that plan is only \$20.50, or \$12.25 per year less. The difference is accounted for by assuming the benefit from interest.

These illustrations prove the almost criminal negligence that would be involved in blissfully closing one's eyes to facts before us, & gently drifting either into ultimate insecurity, or into a condition devoid of earning power. Hence, in face of a rate of interest that has permanently fallen, & that will, in all probability, continue for some time to fall, the advocates of an immediate division of a nominal

surplus may defeat their own object & prejudice their own interest by impairing the stability of a company from which their children may obtain little because they themselves have already eaten the fruit. Therefore, it becomes at times the bounden duty of those charged with the administration of a great trust to maintain people's interests, even against their opinions.

Under the amended Insurance Act of last session, all the companies must now hold their reserves on new business upon a $3\frac{1}{2}$ per cent. interest basis, & must further proceed to bring the reserves on all existing business to the same basis. As generous creditors sometimes do for respectable debtors, the Government has granted an extension of time in which any company, however weak, might easily meet its obligations under existing contracts. But a law which is framed to aid the weak should not be used to bind the strong.

In order to place before our directors just what was involved in passing to the higher standard, it was decided during last year to ask our Actuarial Department to make a detailed valuation of our \$37,000 policies upon the Hm. $3\frac{1}{2}$ per cent. basis. In addition to this, two other full detailed valuations were made, viz., one upon the Actuaries' Table & interest at 4 per cent., & the other upon American Experience 4 per cent. Table. Never has such an exhaustive investigation of its policy liabilities been undertaken by the Company. But the results proved of great value & interest. While the Actuarial Department was busily engaged in measuring up the policy liabilities on different bases, the newly-appointed Treasurer was hard at work taking stock of our assets. When the two sides of our balance sheet came together, therefore, it was a matter of great satisfaction that the Company was found in possession of a substantial surplus over all liabilities, even upon the high standard of Hm. $3\frac{1}{2}$ per cent.—the new Government basis.

In order to have the benefit of independent expert opinion as to how far the Company should now go towards meeting the new Government standard, it was decided to lay the whole situation before two distinguished Actuaries, one English & the other American. The gentlemen selected were H. W. Manly, F.I.A., London, England, the President of the Institute of Actuaries of Great Britain, & Mr. David Parks Fackler, Consulting Actuary of New York, ex-President of the Actuarial Society of America. Mr. Manly, who, by the way, holds the highest office in the gift of

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British actuaries, is so strongly convinced of the necessity & advantages of the adoption of the new $3\frac{1}{2}$ per cent. basis, that he did not hesitate to recommend its immediate adoption. "After weighing," he says, "all the arguments in favor of or against either of the courses open, I am strongly of the opinion that it would be better for the Company & for the policy-holders generally to make the change at once even if you have to pass a bonus altogether." Mr. Manly's exhaustive report, as well as that of Mr. Fackler, will be printed for the benefit of our policy-holders.

Mr. Fackler's opinion would have supported a like conservative course, but he also looked favorably upon a proposal that was under consideration by the Directors, viz., the paying of a moderate bonus to policy-holders upon this occasion, & then during the present quinquennial period passing to the full $3\frac{1}{2}$ per cent. standard.

MR. F. W. GATES, Vice-President, said:—I suppose no one anticipated that the fall would have been so continuous. I am free to say that if ten, fifteen or twenty years ago the Directors could have foreseen what remarkable reductions would occur in interest rates, they would undoubtedly have applied a portion of the profits at each quinquennial period toward strengthening the Company's reserves, & thus have enabled us to pass to a $3\frac{1}{2}$ per cent. basis with less variation in our rate of bonus than must now arise. It may interest you to know that if we had at each quinquennial period, from 1870 to 1890, paid the same rate of bonus as in 1895—that is 2 per cent.—we would now have had more than enough accumulated surplus to have enabled us to pass to a $3\frac{1}{2}$ per cent. standard, & still to pay a 2 per cent. bonus on this occasion.

MR. B. E. WALKER, General Manager Canadian Bank of Commerce, said:—This Company has been at the end of a long administration put through the crucible, a thing which to any company, bank, or other institution, whether it results in a disappointing statement or not, is of enormous value, because in that we have a supreme test, & that test has been responded to, & the Company has been able to stand it. That is a thing every agent, every policy-holder, every shareholder of the Company, everyone concerned in the Canada Life, might bear in mind, that after a long period of administration, largely by one man, whose administration we all respect, it has been put to the supreme test, & has answered to it splendidly. There is this point to remember in addition, that if it hadn't been necessary to make this adjustment of interest, we would have presented after the examination a statement practically not different from the statements of the past. The great thing in a company after all is to know whether we are really doing the right thing, the wisest thing. No bank, no insurance company, no mercantile company, & no business concern of any kind has ever yet suffered from doing the thing that was the right thing. And I believe that is what we are doing to-day.

Robert Gillespie Reid.

The directors of the Bank of Montreal have elected R. G. Reid to succeed the late W. W. Ogilvie as a director. Mr. Reid was born at Coupar Angus, Perthshire, Scotland, & went to Australia in 1865, engaging principally in gold-mining & public works. In 1871 he came to America, & had charge of the building of the international bridge crossing the Niagara River at Buffalo. In 1874 he had charge of the building of the bridges between Montreal & Ottawa, on the line of the Montreal, Quebec & Ottawa Ry., which is now a portion of the C.P.R. He contracted for & built the bridge across the Colorado River at Austin, Texas, & also furnished the iron & masonry

on the first 250 miles of the Southern Pacific Ry., west from San Antonio. He also built the International Ry. bridge between Texas & Mexico in 1882, & the railway bridge across the Delaware River at Delaware Water Gap, Pa. His largest work was the building of the heaviest section of the C.P.R. north of Lake Superior, which included a 450-ft. tunnel through solid granite. He constructed permanent & temporary bridges on 250 miles of the C.P.R. line east of Port Arthur. Near Montreal is a monument to his handiwork in the C.P.R. bridge at Lachine, & it stands to-day one of the finest structures on the continent. This bridge, built in 1886, is three-quarters of a mile in length, & was completed in six months. In 1887 he constructed the "Soo" bridge across the St. Mary's River, & the Sudbury branch of the C.P.R. In 1889 & 1890 he devoted his attention to 45 miles of railway for the Government, & the bridge across the Grand Narrows, C.B. It was in this year that he became interested in Newfoundland. He took the contract to build the Hall's Bay Ry., some 260 miles, & completed it in 1893. In the same year he contracted with the Newfoundland Government to build the Western Ry., which extended to the west coast of the island, some 250 miles. This work was completed in 1897. Under his contract with that colony Mr. Reid has the right to operate the whole road for a term of years. He is a member of the Canadian Society of Civil Engineers, a fellow of the Royal Colonial Institute, & a Governor of the Royal Victoria Hospital. He has an office in the Canada Life Building, Montreal, & his residence is on Drummond Street.

ELECTRIC RAILWAYS.

Maritime Provinces & Newfoundland.

Halifax Electric Tramway.—Railway earnings:—

	1900	1899	Increase.
Jan.	\$11,475.40	\$8,704.78	\$2,770.62
Feb.	8,982.41	7,531.43	1,450.98
	\$20,457.81	\$16,236.21	\$4,221.60

At the annual meeting Feb. 12, the following were elected directors:—Hon. D. McKeen, J. G. Payzant, W. B. Ross, B. F. Pearson, A. Haley, F. Paul, A. Kingman.

Quebec Electric Railways.

Montreal Park & Island Ry.—A second suit has been entered by M. Connolly to set aside the deed of trust purporting to secure the 2nd series of bonds, to compel the Co. to execute and register in favor of the trustees for the 1st series of bondholders a new trust deed which shall be free from the defects alleged against the first trust deed by the Co. & its directors. (June, 1899, pg. 189.)

Montreal St. Ry.—The gross earnings are:

	1899-1900	1898-1899	Increase.
Oct.	\$145,877.20	\$133,619.63	\$12,257.57
Nov.	133,489.12	125,125.09	8,364.03
Dec.	137,681.19	127,768.38	9,912.81
Jan.	136,086.33	125,276.04	10,810.29
Feb.	122,509.64	113,838.02	8,671.62
	\$675,643.48	\$625,627.16	\$50,016.32

The directors have voted \$1,000 to the Canadian Patriotic Fund.

The Co. has paid the City of Montreal \$81,354.88 as percentage on its earnings of \$1,641,955.96 for 1899. Under the agreement between the Co. & the city the percentage payable is as follows: 4% of gross earnings up to \$1,000,000. 6% of gross earnings from \$1,000,000 to \$1,500,000. 8% of gross earnings from \$1,500,000 to \$2,000,000. 10% of gross earnings from \$2,000,000 to \$2,500,000. 12% of gross earnings from \$2,500,000 to \$3,000,000. 15% of gross earnings from \$3,000,000.

The Co. has erected an oven for drying sand. It consists of a rectangular brick

chamber, about 5 x 10 ft. inside, with a V-shaped boiler plate bottom, which is placed immediately over the fire-grate. To prevent undue warping & buckling of this plate, it is stiffened with T irons and protected inside by a firebrick arch, in which there are openings at intervals to permit the heated gases to reach the plate. The sand as it dries falls by gravity through openings in the outside of the brick wall into screens, on which it is sifted & prepared for use. The furnace is large enough to permit old waste wood to be used as fuel.

At a recent meeting of the Roads Committee, the question of putting the Co.'s feed wires under ground was considered. The preamble of the draft contract submitted by the Co. declared that it was not advisable to combine street railway, telephone & telegraph & other wires in one conduit. The Co. proposed to take, in the laying of the conduits, the shortcut way from the power-houses to the points where power would be needed. The conduits would be built & the wires insulated according to the best methods. The Co. in no case would obstruct the streets any longer than needed for the execution of the work. The paving & materials that the Co. would remove in laying the conduits would be replaced by the Co., but the latter would have to get the approval of the City Surveyor, & a permit from the contractors of the paving that would be satisfactory to the Surveyor. If the Co. could not secure that permit, or certificate, the Surveyor would estimate the cost of removal & replacing, & the Co., before commencing excavations, would deposit the amount of the estimates in the city treasury. Once the work was all done, the accounts would be balanced between the city and the Co.

Manager Wanklyn, in explaining the proposal, said the Co. had been asked to improve its service, & intended to do so. But in order to accomplish the contemplated improvements it would be necessary to treble the present capacity of the feed wires. The acceptance of the proposed plan would give the work a permanent nature. The Co. was also anxious to avoid interruptions to the service from fires, etc. The conduits would be built first on the streets where the overhead wiring was the thickest. The work would cost \$200,000 or more & would last 9 or 10 months. The committee was requested to act quickly, as the Co. wished to begin the works in the spring. What was proposed was not unlike the conduit system of the Bell Telephone Co. The manholes on the street would be 350 ft. apart, & the cables about 2½ ins. in diameter, with copper wires. The area to be covered by the system would probably include Notre Dame, St. James & St. Catherine Sts. Conduits would be laid along William St., beginning at McGill, up Guy St., around St. Antoine & Lagachetiere Sts. In that way the only asphalt to be broken would be at the Notre Dame & Guy Sts. crossing. Mr. Wanklyn had made a special study of the joint conduit system in U. S. cities, & knew that such a system was bad, as high tension wires, such as those of a railway, were bound to disturb low tension wires, such as telephone & telegraph wires. He could promise, however, that the railway wires, in this case, would be so well insulated that no electricity would wander away from them to damage water and other pipes.

Ontario Electric Railways.

Central Ontario Power Co.—Hon. R. Harcourt, E. Coste, J. A. Culverwell, F. W. Barrett, Dr. E. Adam, Toronto; R. J. McLaughlin, Lindsay; J. Kendry, Peterboro'; H. J. Taylor & H. E. Larkin, St. Catharines, & Hon. P. McLaren, Perth, have been incorporated under this title, to develop water power at Burleigh Falls, Peterboro' county, to sell electric power for all purposes, & to con-

struct & operate an electric railway in Peterboro' & Ashburnham, & in the townships of Smith & North Monagan.

Grand Valley Ry.—At a meeting in Berlin, Feb. 10, the charter held by the original provisional directors was transferred to a new organization with the following officials:—President, D. W. McNair, New York City; Vice-President & Managing Director, J. S. Clarke, Ayr; 1st Vice-President, W. J. Briethaupt, Berlin; 2nd Vice-President, W. J. Clarke, Toronto. Other directors: J. Ellis, Port Dover; S. Snyder, Waterloo; Dr. Bowlby, Simcoe; F. Colquhoun, Berlin; C. A. Austin, Simcoe; A. Brant, St. Mary's; Sec'y., H. J. Bowman, Berlin; Engineer, E. H. Darling, Hamilton. The Co. is applying to the Dominion Parliament for an amendment to its charter. The project is to build an electric railway from Port Dover through Simcoe, Waterloo, Boston, Mt. Pleasant, Brantford, Paris, Ayr, Galt, Preston, Doon, Berlin, & Waterloo to Goderich. Mr. Clarke has been holding meetings along the route for the purpose of obtaining bonuses, which are asked as follows: from Port Dover \$155,000, Simcoe \$10,000, Brantford \$35,000, Galt \$10,000, Preston \$4,000, Berlin & Waterloo \$30,000. (Dec., pg. 371.)

The Canadian Pacific Railway Company.

Dividends for the half-year ended 31st December, 1899, have been declared as follows:—

On the Preference Stock two per cent.

On the Common Stock three per cent.

Warrants for the Common Stock dividend will be mailed on or about and April to Shareholders of record at the closing of the books in New York and London respectively.

The Preference Stock dividend will be paid on Monday, and April, to Shareholders of record at the closing of the books at the Company's London Office, 1 Queen Victoria Street, London, E.C.

The Common Stock Transfer books will close in London at 3 p.m. on Tuesday, 27th February, and in Montreal and New York on Friday, 9th March. The Preference Stock books will close at 3 p.m. on Tuesday, February 27th.

All books will be reopened on Thursday, 5th April.

By Order of the Board.

CHARLES DRINKWATER, Secretary.
Montreal, 12th February, 1900.

THE FIRSTBROOK BOX CO., LIMITED.

CROSS ARMS, TOP PINS,
AND SIDE BLOCKS,
TORONTO.

Hamilton Consolidated Lines.—In regard to the proposed extension of the Hamilton Radial Electric Ry. to Oakville, we are informed that it is not very probable the work will be gone on with this year, although possibly it may be if the price of rails & material should go down a little. The extension was proposed last year, but the idea was abandoned for the time being, owing to the high prices. (Feb., pg. 56.)

Manager Green denies that night cars are to be started in Hamilton. The Hamilton St. Ry. Co. paid the city \$3,824.80 as percentage & mileage for the last 3 months of 1899, against \$3,577.21 for the same period of 1898.

The Niagara Falls Park & River Ry. Co.'s annual meeting was held in Toronto Feb. 28. The following are the officers for the current year:—President, W. C. Ely; Vice-President, W. B. Rankine; General Manager, B. Van Horn, all of Buffalo; other directors: E. B. Osler, T. G. Blackstock, W. H. Beatty, Toronto; W. Hendrie, Hamilton; Sec.-Treas., R. F. Rankine, Buffalo.

The Canadian Pacific Railway Company.

NOTICE TO SHAREHOLDERS.

The Nineteenth Annual Meeting of the Shareholders of this Company for the election of Directors and the transaction of business generally will be held on Wednesday, the fourth day of April next, at the principal office of the Company at Montreal at 12 o'clock noon.

The Common Stock transfer books will close in London at 3 p.m. on Tuesday, 27th February, and in Montreal and New York on Friday, 9th March. The Preference Stock books will close at 3 p.m. on Tuesday, February 27th.

All books will be reopened on Thursday, 5th April.

By Order of the Board.

CHARLES DRINKWATER, Secretary.
Montreal, 12th February, 1900.

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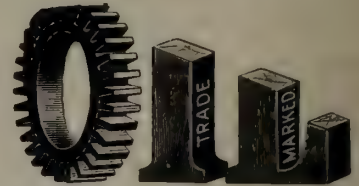
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THE HUNTER, ROSE CO.,

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Temple Building, • • Toronto.

The International Traction Co., which controls this line as well as a number of others in & around Buffalo, has ordered 100 open cars for April delivery, & will, it is said, place orders for 150 or 200 more later in the year, in view of the heavy traffic expected in connection with the Pan-American Exposition at Buffalo.

Ottawa Electric Ry.—The extension to Britannia is now practically completed, but will probably not be operated until early in May, as the traffic before then would not be of a paying character, & the equipment is not yet completed. A promenade to extend about 800 feet into the river is being erected at Britannia Bay by the Co. (Jan., pg. 29.)

The Sarnia St. Ry. Co.'s proposition to the town council there, in connection with changing the road to an electric one & extending it, appears to be at a standstill, as an application for a franchise has been made by a rival company. (Dec., pg. 371.)

Toronto Railway.—Gross Earnings:

	1900	1899	Increase.
Jan.....	\$113,703.96	\$95,690.12	\$18,013.84
Feb.....	103,954.19	91,860.10	12,094.09
	\$217,658.15	\$187,550.22	\$30,107.93

The Co. is appealing to the Judicial Committee of the Imperial Privy Council against the decision of the Court of Appeal of Ontario in reference to the mileage chargeable to the Co. under the agreement between it & the city.

The Co. is building 20 motor cars, each with a carrying capacity of 80 passengers, for summer traffic; 2 similar cars with capacity for 108 passengers are being built for the Toronto & Mimico line.

In reply to a letter from the Chairman of the City Works Committee, suggesting the extension of the Toronto railway system as radial railways within a radius of 50 to 100 miles of Toronto, by extending its eastern line to Oshawa & thence to Rice Lake; the northern route from Little York to Lake Simcoe, making connection at Beaverton; the extension of the western route to Oakville, & north-west of same, & another line to some north-western point, for the concentration of trade at St. Lawrence market, President Mackenzie recently wrote that the directors would be pleased to meet the committee at any time with the object of discussing a proposition in regard to this matter that would be both acceptable & beneficial to the city, & one that the city would assist to a successful issue.

Electric Lines in Western Canada.

British Columbia Electric Ry.—The London Stock Exchange Committee has ordered this Co.'s 12,000 5% preference shares of £10 each fully paid, nos. 25,001 to 37,000, to be quoted in the official list.

The net earnings from Apl. 1, 1899, to Jan. 31, 1900, were \$173,063, against \$140,975 for corresponding period of 1898-9.

The Secretary has issued the following circular:—"In consequence of the continued prosperity & extension of the Co.'s business, the directors have been able to make a reduction in price of 10, 15, & 20%, respectively, in the various classes of lighting. This reduction came into force on Jan. 1, & covers the period of the enclosed traffic. The step has been taken with a view of further popularizing the Co.'s light, & it is expected that, in a few months, the increased business arising from it will fully compensate for the reduction. The present rates compare favourably from the consumers' point of view with those in force in other cities in Canada & the U.S.

The Suburban Park Ry. Co. was incorporated by the Manitoba Legislature in 1899, with power to build a railway from St. Boniface along the east side of the Red River to St. Norbert, with a branch to St. Anne, also to cross

a bridge from St. Boniface to Winnipeg, to build a railway from St. Norbert on the west side of the Red River to the boundary of the city of Winnipeg, & from St. Boniface east of the Red River to Elm Park. The Co. has given notice of application to the Legislature to amend its charter by giving power to extend the proposed railway to a point within the city of Winnipeg, also to build lines from some point between Winnipeg & St. Norbert to the southern boundary of Manitoba between ranges 9 & 13 east, to extend its lines on the west side of the Red River northerly to Winnipeg, & from a point between Winnipeg & St. Norbert to the southern boundary of the Province between ranges 1 & 6, also giving power to the town of St. Boniface to grant a bonus of \$40,000, & to the city of Winnipeg to grant a bonus of \$20,000, towards building a bridge over the Red River between St. Boniface & Winnipeg.

Detroit, Mich., is contemplating an extension of the use of the trolley. It is proposed that the street railways of the city be allowed to carry packages, merchandise & other light freight, milk, farm produce & garden truck, between 8 a.m. & 8 p.m. each day. In the proposed ordinance it is provided that each freight car must be as nearly like the passenger cars as the character of the business will permit, & must be approved by the Board of Public Works before being permitted to enter the business. Only single trolley freight cars may be run, & they shall not be stopped on the street for the purpose of receiving or discharging freight, & shall not interfere in any way with passenger traffic. Suitable freight depots shall be provided where all freight shall be received or discharged. The freight cars must transport materials & supplies for the various city commissions, & the company must pay the city a certain sum for every car of freight hauled over the lines.

The San Paulo Tramway, Light & Power Co., of which W. Mackenzie, of Toronto, is President, is equipping San Paulo, in Brazil, a city of 250,000 population, with an up-to-date electric railway system. For many years the citizens of San Paulo have put up with a mule road, and, although it paid pretty well, the accommodation was not first-class. Finally, the failure of one of the chief shareholders drove this concern into liquidation. The new & improved system, which is the product of Canadian enterprise & capital, will have 40 miles of track; there are 15 miles down now, & the equipment for poles & cars is already on the spot, so no great delay in getting the system in complete running order is likely to take place. Water power to the extent of 18,000 horse power will be obtainable, some ten thousand being now in process of development by the Canadian company. The hydraulic works are exceedingly well situated, & are located about eighteen miles from the city of San Paulo. A large number of wealthy coffee planters from all over the state make San Paulo their headquarters, while it is also true that all the coffee shipped from the important harbour of Santos, 40 miles away, passes through San Paulo, & this is nearly four-fifths of all the coffee exported from the Republic of Brazil.

General Telegraph Matters.

The annual meetings of the Canada Mutual Telegraph Co., & of the Mutual Telegraph Co., will be held in Montreal Mar. 29.

The Uganda Railway telegraph line reached the Nile at Ripon Falls Feb. 18, & was carried across the river next day, thus establishing telegraphic communication between London & the sources of the Nile.

The telegraph line on the Great Northwest Central Ry., in Manitoba, has been transferred to the C.P.R. Co.'s Telegraph, & a tariff

of 25c. for 10 words has been put into effect between offices on that line & other offices on the Co.'s lines in Manitoba. Offices have been opened at Crandell & Miniota, on the extension of the railway built last year.

The Western Union Telegraph Co. has decided to ask authority of its stockholders to issue \$20,000,000 of 4½% 50-year gold bonds, \$10,000,000 of which to be negotiated at once. These will be known as "funding & real estate mortgage bonds." The immediate purpose of the issue is to make provision for the Co.'s bonds maturing this year & in 1902, & also to provide means for construction purposes, the demand for special wires being constantly growing. The new bonds will be specifically secured upon the real estate of the Co. in New York & Chicago, & will contain a provision that no mortgage shall hereafter be placed upon any part of the Co.'s system without first securing a prior lien to the present issue of bonds. Ten million dollars of bonds will be held in the treasury for future use.

Few outside of those directly interested are aware of the volume of business that passes through the cable office at North Sydney, N. S. The average number of cablegrams is over 8,000 a day, although 11,000 is not an uncommon record. Over 50 people are employed in the office, which is one of the most important in the control of the Western Union Telegraph Co. In addition to the quadruplex & duplex circuits previously in use, there have been introduced lately in the North Sydney station 2 Muirhead automatic recorders, working 40 or 50 words a minute over the cables. A Wheatstone automatic duplex system is being installed between North Sydney & New York over the land lines, & it is expected that a speed of 100 words a minute will be attained. W. E. Earl is Manager at North Sydney, vice W. F. Snyder, lately deceased.—Telegraph Age.

A. C. Terry, assistant chief operator of the Western Union at Buffalo, N.Y., has been promoted to the position of electrician of the fifth district, with headquarters at Syracuse, N.Y. He was born in Wellington, Ont., in 1855, learned telegraphy at Brighton, Ont., & a year later was promoted to a position with the Montreal Telegraph Co., the duties of which required him to open new offices & instruct the recently appointed agents who were to be placed in charge. In 1873 he was transferred to Toronto, & in 1875 secured a position with the Dominion Telegraph Co., in Toronto. In 1876 he was transferred to Buffalo, & shortly afterwards secured a position with the American Union Telegraph Co., at that place, as chief operator. In 1881, when the American Union & Western Union companies consolidated, he went with the Western as assistant chief operator.—Telegraph Age.

The Commercial Cable Co.'s report for 1899 presented at the annual meeting in New York, Mar. 5, says: "The net traffic earnings from cables & land lines increased \$319,097.96 over the previous year. Out of the balance to the credit of revenue account there has been set aside, \$350,000 as an addition to the reserve fund & also \$150,000 to the fund for insurance of stations, apparatus & repair steamer, & these sums will be invested in first-class securities. The reserve fund amounts to \$3,475,631.05, & the insurance fund to \$356,419.60. After providing for all operating expenses & reserves the balance of net revenue, including the amount brought forward from the previous year, amounts to \$1,748,063.26, out of which have been paid interest on the bonds & debenture stock (\$720,000) & dividends & bonus on the capital stock (\$800,000), leaving \$228,063.26 to be carried forward in the present year. There have been added to the Co.'s land line system 1,013 miles of poles, 13,253 miles of wire & 118 new offices."

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(For \$1,000 Mortuary Benefit.)

Initiation fee (minimum).....	\$1 00
Certificate fee.....	1 00
Registration fee.....	1 00
Medical Examination fee.....	1 50

Total minimum cost.....\$4 50

(For more than \$1,000 Mort. Benefit.)

Cost to take \$2,000 Mort. Benefit..	\$6 00
" " \$3,000 " " "	7 00
" " \$4,000 " " "	9 00
" " \$5,000 " " "	10 00

Sick benefits, when required, cost extra.

Benefits given by the I. O. F.

- 1.—Social and Fraternal Privileges of the Court Room.
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- 3.—A Sick Benefit of \$3 to \$5 per week, subject to provisions of the Constitution and Laws of the Order; optional, and when taken costs extra.
- 4.—A Total and Permanent Disability Benefit of one-half of face value of policy, with exemption from further payment of premiums or Court Dues.
- 5.—An Old Age Benefit consisting of exemption from payment of premiums and Court dues after age 70.
- 6.—An Old Age Disability Benefit of one-tenth of face value of policy payable yearly for ten years, on being declared totally and permanently disabled by infirmities of age after the seventieth birthday.
- 7.—An Old Age Pension payable during disability, which may be taken as a substitute for the Old Age Disability Benefit.
- 8.—A Burial Benefit of \$100 at death of a Pensioner.
- 9.—A Funeral Benefit of \$50 at death of a member enrolled in Sick and Funeral Benefit Department.
- 10.—The Mortuary Benefit of \$500, \$1,000, \$2,000, \$3,000 \$4,000 or \$5,000.

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At 31st December Each Year.

Year.	Total Membership.	Benefits Paid.	Total Surplus.	Surplus per Capita.	Death Rate per 1,000.
1881	1,019	\$ 1,300 00	\$ 4,568 55	\$ 4 48	4.50
1882	1,134	12,058 86	2,967 93	2 61	11.00
1883	2,210	9,493 68	10,857 65	4 91	4.73
1884	2,558	13,914 31	23,031 85	9 01	4.23
1885	3,642	26,576 99	29,802 42	8 18	7.76
1886	5,804	28,499 82	53,981 28	9 30	4.85
1887	7,811	59,014 67	81,384 41	10 44	5.78
1888	11,800	89,018 16	117,821 96	9 98	6.43
1889	17,349	116,787 82	188,130 36	10 84	5.85
1890	24,604	181,846 79	283,967 20	11 54	5.18
1891	32,303	261,436 21	408,798 20	12 65	6.40
1892	43,024	344,748 82	580,597 85	13 49	6.25
1893	54,184	392,185 93	858,857 89	15 76	5.47
1894	70,055	511,162 30	1,187,725 11	16 94	5.47
1895	86,521	685,000 18	1,560,733 46	18 03	5.67
1896	102,838	820,941 91	2,015,484 38	19 60	5.50
1897	124,685	992,225 60	2,558,832 78	20 52	5.56
1898	144,000	1,176,125 14	3,186,370 36	22 12	5.67

For Further Information Respecting this Great Fraternal Benefit Society, Apply to

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James Marshall, 24 Charing Cross, London, Eng.

John A. McGillivray, Q.C., S.S., Toronto, Ont.

A. E. Stevenson, 6436 Kimbark Ave., Chicago, Ill.

Or Any Officer or Member of the Order.

Dominion Government Telegraph Lines.

In speaking in the House of Commons recently in reference to the improvement of the St. Lawrence navigation, the Dominion Minister of Public Works said that he hoped that the telegraph line to Belle Isle would be completed by July or Aug.

The Dominion estimates for the year ending June 30, 1901, provide \$10,000 to complete the extension of the telegraph line on the north shore of the St. Lawrence eastward to Belle Isle Island, & \$1,000 to improve roadway, repair & increase operating facilities generally between Godbout & Pointe aux Esquimaux eastward.

The following items appear under the head "Public Works chargeable to the collection of revenue," in the Dominion estimates for the year ending June 30, 1901:

Telegraph line between Prince Edward Island & the mainland	\$ 2,000 00
Land & cable telegraph lines of the sea-coasts & islands of the lower rivers & gulf of St. Lawrence & Maritime Provinces, including cost of working str. Newfoundland or other vessels when required for cable service	32,000 00
Telegraph lines, Northwest Territories	20,000 00
Telegraph lines, British Columbia	12,000 00
Telegraph & signal service generally	2,750 00

In the House of Commons recently the Dominion Minister of Public Works stated that the cost of constructing the Government telegraph line between Bennett, B.C., & Dawson was reported by the Superintendent of Construction as \$146,937.99, an average of \$223.63 a mile. Wire was purchased from different persons at \$2.50 & at \$2.74 per 100 lbs. The Minister also stated that connection between the Bennett-Dawson telegraph line & Atlin City had been made by the construction of a line from Tagish to Atlin, at a cost of \$15,500, & that the line was in full operation.

J. B. Charleson arrived at Vancouver early in Feb., in connection with the construction of the remaining sections of the Yukon telegraph line. At present a government line runs from Ashcroft to Quesnelle, B.C., & the work now undertaken is to build a line from Quesnelle to Atlin, B.C., where connection will be made with the line to Dawson, Yukon, built last year. A party was despatched from Vancouver, via Skagway, to Atlin, to commence building from there towards Quesnelle, & Mr. Charleson went with another party to Quesnelle to start building from there towards Atlin. The 1st stretch from Quesnelle to Hazelton will be about 300 miles, the 2nd from Hazelton to Telegraph Creek will be about 400 miles, & the 3rd from Telegraph Creek to Atlin about 344 miles, a total of 1,044 miles, which it is expected to complete this year. At present messages from Dawson have to be brought from Skagway by steamer to Vancouver, & vice versa. While in Vancouver Mr. Charleson stated that the Minister of Public Works had authorized him to also build a 50 mile line from Dawson to the International Boundary, to meet a line which is to be built from St. Michael's to Circle City by a U.S. company, but the Postmaster General has since stated in the House of Commons that this is not at present contemplated, as there is no vote out of which to take the cost of construction.

The Bell Telephone Company.

At the annual meeting in Montreal Feb. 22, the 20th annual report was presented as follows:—2,841 subscribers have been added during the year, the total number of sets of instruments earning rental being 34,923. The Co. now owns & operates 343 exchanges & 450 agencies; 1,686 miles of wire have been added to the long distance system in 1899; of these 318 miles are in the Ontario department & 1,368 are in the eastern department. The long distance lines owned & operated by the company comprise 18,920 miles of wires on 6,229 miles of poles.

In Dec. the directors, acting under the power conferred upon them, offered to the shareholders at par 9,900 shares of new stock, in the proportion of 1 share of new for each 4 of old, practically all of which have been subscribed for.

Since the last report, the building in London has been completed, a building has been erected in Parkdale, & a building for the stores department has been erected on Mountain st., Montreal, all of which have been paid for. There is no encumbrance whatever on any of the company's real estate.

REVENUE ACCOUNT DEC. 31, 1899.

RECEIPTS.	
Exchanges	\$1,025,838.88
Long distance lines	303,374.04
Private lines	12,111.08
Miscellaneous	115,339.06
	\$1,456,663.06
EXPENSES.	
Operating	\$1,025,215.31
Legal	10,924.55
Insurance	14,605.62
Bond interest	47,642.65
Miscellaneous	4,987.53
	\$1,103,375.66
Net revenue for 1899 ..	\$ 353,307.40
Less dividends (inc. Jan. 15, 1900) ..	312,920.00
	\$ 40,387.40
Balance revenue from 1898 ..	149,735.98
Carried forward to 1900 ..	\$ 190,123.38

BALANCE SHEET, DEC. 31, 1899.

Stock account	\$3,960,000 00
Bond account	1,010,000 00
Contingent fund	800,000 00
Revenue account	190,123 38
Unearned rental reserve	185,614 83
Insurance reserve	77,897 27
Accident reserve	19,745 76
Bond interest reserve	12,625 00
Sundry creditors	579,518 01
	\$6,835,524 25
Plant and patents, Dec. 31, 1898 ..	\$4,576,276 35
Do. added in 1899 ..	668,159 98
Plant and patents, Dec. 31, 1899 ..	\$5,244,436 33
Stores on hand	238,851 39
Real estate	756,743 06
Stock in other companies	405,981 50
Sundry debtors	120,429 40
Due from Agencies	55,632 58
Cash ..	13,449 99
	\$6,835,524 25

The following directors were elected:—C. F. Sise, R. Mackay, J. E. Hudson, R. Archer, W. R. Driver, H. Paton, C. Cassils & T. Sherwin.

The Co. has recently made improvements in its exchange at Acton, Ont., including a new combined local & long distance switchboard.

T. Jackson, for 14 years manager at Stratford, Ont., for the Co., has retired, owing to advanced years, & has been succeeded by J. H. Martin.

The Co. has placed with the Acton Burrows Co., Toronto, a large order for enameled iron signs for its local & long distance stations. They will be 19½ x 18 ins., made double with flange so as to project from buildings & to be readable from either side. They will bear the well-known sign of a bell, & will be lettered "Public Station, Local & Long Distance Telephone." The ground will be white & the device & lettering in blue.

General Telephone Matters.

A sleet & snow storm which raged in Halifax Feb. 23, is said to have caused the Nova Scotia Telephone Co. a loss of about \$100,000.

The Victoria Telephone Co., with headquarters at Woodville, Ont., which operates in the county of Victoria, will, it is said, build into Lindsay.

Application is being made to the British Columbia Legislature for the incorporation of the Western Telephone & Telegraph Co. with power to build from Vancouver to the Boundary Creek district.

The Union Telephone Co., of Musquodoboit, N.S., has elected the following officers: President, E. Archibald; Vice-President, J. Annand; Sec.-Treas., H. C. Taylor. Last year's business is reported to have been most satisfactory.

It is said to be the intention of the Vernon & Nelson Telephone Co. to extend its lines as far as Camp McKinney, B.C., via Rock Creek, & from Rock Creek to Bolster, Wash., where the system will connect with that of the Inland Telephone Co., which will build up from Republic to Chesaw & Bolster. It is understood, too, that it is the intention of the latter Co. to extend its lines into the Okanagan country, taking in Loomis, Oro & other points of importance.

At the recent annual meeting of the Winnipeg Board of Trade, President Drewry said in his report: "Another evidence of our progress is found in the wonderful development of our telephone system. May 1, 1881, witnessed the opening in this city of the first telephone exchange, with 25 subscribers. Since then there has been a steady annual increase in the number, & at present 1,250 subscribers enjoy, either in their homes or business places, this really indispensable convenience; 1,745 miles of wire on poles & 502 under ground; a total of 2,247 miles is required in the installing of these instruments. There are, within the city's boundaries, 65 miles of poles. The system employed is known as the metallic circuit system, i.e., 2 wires to each subscriber. Winnipeg was the first city in Canada to generally adopt this system. The long distance telephone, now recognized in the large business centres as practically invaluable for the rapid transaction of business, is also showing marked development here. I understand not less than 200 miles will be constructed during the coming season, connecting Winnipeg with Portage la Prairie, Carberry, Brandon, Minnedosa, Neepawa & intermediate points."

Among the Express Companies.

M. M. Perl has been appointed General Agent for the Alaska Pacific Ex. Co., with headquarters at Cape Nome, Alaska.

The Western Ex. Co.'s service has been placed on the Hancock & Arcadian Mine stage route, & an office opened at Arcadian Mine, Mich.

The Dominion Ex. Co.'s stationery & supply department at Winnipeg has been closed, & requisitions for stationery & supplies are now made on the supply department at Toronto.

The Dominion Ex. Co. has opened the New Westminster & Chilliwack steamboat route, between New Westminster & Chilliwack, B.C., distance about 65 miles, service tri-weekly.

Plans are being prepared for additions to the Toronto Union station to accommodate the Canadian & the Dominion Express Co's. the present quarters being found inadequate for the increased business.

The Alaska Pacific Ex. Co. has entered into an exclusive contract for operating on the White Pass & Yukon Ry. from Skagway to Lake Bennett, B.C., at which point connection is made for Dawson by sleds & dog teams. There is now a daily messenger service between Skagway & Bennett.

The Alaska Pacific Ex. Co. has completed arrangements for extending its service to Cape Nome, Alaska, & will be prepared to handle all business for Cape Nome & St. Michaels as soon as navigation opens. It will have service on the Pacific Clipper line of

steamers, as well as those operated by the British-American line. The average time for steamers between Seattle & Cape Nome will be about 10 days, with a boat leaving Seattle every 7 days.

Merchandise.—Tariff between Seattle, Cape Nome, St. Michaels & intermediate points:

1 lb. (minimum charge)	\$ 1.50
1 lb. to 2 lbs.	2.00

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20 lbs. to 25 lbs.	6.00
25 lbs. to 30 lbs.	7.00
30 lbs. to 35 lbs.	8.00
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45 lbs. to 50 lbs.	10.00
Over 50 lbs., per pound.	20c

On merchandise, when valued over \$50, the regular money rate—as quoted below—will be charged on valuation as additional. On bullion, specie, jewelry, currency, &c., 2%, or \$20 per \$1,000; minimum charge \$1. The above rates do not include marine risk. Charges on all matter for St. Michaels & intermediate points must be prepaid.

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Size 23 x 3½ inches. Oblong, fancy ends, white ground, blue letters, lined & tipped:

Agent's Office.	Waiting Room.
Express Office.	General Waiting Room.
Freight Office.	Ladies' Waiting Room.
General Offices.	Men's Waiting Room.
Private Office.	Dining Room.
Ticket Office.	Lunch Room.
Telegraph Office.	Restaurant.
Baggage Room.	Ladies' Toilet.
Smoking Room.	Men's Toilet.
Smoking Prohibited.	No Admittance.
Trespassers Prosecuted.	

NO ADMITTANCE

Size 10 x 2½ inches. Oblong, oval ends, white ground, blue letters, lined & tipped, hollowed:

Bar Room.	Men.
Luggage Room.	Private.
Office.	No Admittance.
Refreshments.	No Road.
Exit.	Boarding House.
Fire Escape.	Private Board.
Lavatory.	Dressmaking.
Ladies.	Fresh to Day.
Women.	Teas Provided.
Gentlemen.	Please Shut the Gate.

Size 14 x 3 inches. Oblong, oval ends, white ground, blue letters, lined and tipped.

No Admittance.

STICK NO BILLS

Size 18 x 3½ inches. Oblong, square ends, white ground, blue letters, lined & tipped.

Furnished Apartments. Stick no Bills.
Please Shut the Door.

PUSH PULL

Oval, size 2 x 3 inches, white ground, blue letters, tipped, hollowed, lettered Push, Pull, as above.

Oblong, square ends, size 3 x 1½ inches, white ground, blue letters, tipped, lettered Push, Pull, as above.

Perpendicular, square ends, size 12 x 3 inches, white ground, blue letters, lined & tipped, lettered perpendicularly, Push, Pull.

Oblong, square ends, size 12 x 3 inches, white ground, blue letters, lined and tipped, lettered horizontally, Push, Pull.

Oblong, fancy ends, size 3 x 1½ inches, white ground, blue letters, lined and tipped, lettered Push, Pull.

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Canadian Pacific Annual Meeting.

The annual meeting was held in Montreal April 4, Sir Wm. Van Horne, Chairman of the Board, presiding. Among those present were T. G. Shaughnessy, Senator Forget, Hon. J. K. Ward, Sir Sandford Fleming, R. B. Angus, G. M. Clarke, Senator Drummond, J. Ross, C. R. Hosmer, J. Joseph, J. F. Risley, E. B. Osler, J. Morrison, J. T. Davies, C. Meredith, H. Beatty, G. Olds, Senator MacInnes, W. H. Evans, W. D. Matthews.

In moving the adoption of the report President Shaughnessy said: "It is very gratifying to be able to congratulate the shareholders on the excellent results from the operation of the railway during the past year, & upon the prospects of continued prosperity. While, of course, the progress of the agricultural & mining interests tributary to your lines is most marked, the large improvements in your revenue is due to the growth of traffic in every section of the Dominion. The Government reports indicate that in Manitoba & Northwest Territories there will be under crop this season about 500,000 acres of land in excess of 1899, so that with favorable weather conditions, the tonnage to be carried by the railway after the next harvest should be very substantially increased. You will have observed that the rate per ton mile received by your Co. for the carriage of freight is still further reduced, & is lower than that received by any company in the U.S. similarly situated. In view of the remoteness from eastern markets of producers on some sections of your system, it has been the settled policy of your directors to reduce rates as circumstances might warrant, in order to encourage the maximum development of every section of the country, with the purpose of securing increased revenue from the growth of tonnage rather than the maintenance of high rates. The long distances that you are enabled to haul traffic, because of the situation of your railway, & economy in the working of your lines, are, of course, important factors in the successful carrying out of this policy. Apart from some short branch lines any construction work involving an important directors do not at present contemplate in Manitoba & the Northwest Territories, that are required to serve growing communities. The present earnings of the two railway lines, the leasing of which you will be asked to approve at this meeting, are already sufficient to meet any interest liability that may be involved, & the contributed traffic to the main line will be permanently secured. Another gratifying feature of the Co.'s affairs is the fact that during the past year there has been an addition of 150% to the list of shareholders of re-

cord in Canada, & the number is still increasing. The return to the basis of 5% dividends on your common shares is assurance of the conviction of your directors that in the absence of unforeseen commercial disaster, no lower standard will be necessary.

The report, as published in our last issue, having been adopted, the President submitted for approval & explained a lease from the Great Northwest Central Ry. Co. to the C.P.R. Co. The lease demises to the C.P.R. Co. in perpetuity all the railway lines, including branches, which the G.N.W.C. Co. has been empowered to construct & operate & their

lease demises to the C.P.R. Co. for 999 years all the railway lines, including branches, which the M. & N.W.Ry. Co. has been empowered to construct & operate, & their appurtenances, & sub-lets to the C.P.R. Co. the Saskatchewan & Western Ry., which is under lease for 99 years to the M. & N.W. Ry. the C.P.R. Co. to pay as annual rent for the S. & W. Ry. £2,220 stg. & for the M. & N.W. Ry. £24,280 stg., & any additional sum which may be necessary to satisfy the interest on any bonds or other pecuniary obligation which the M. & N.W.R. Co. may issue with the consent of the C.P.R. Co.

It was resolved that the Dominion Parliament having authorized the Co. to construct & operate certain branch lines & to issue securities in respect of them, it is desirable to provide for the completion of the following lines:

	Miles.
The Waskada branch.....	18
The Snowflake branch.....	16
The McGregor Varcoe branch.....	56
The Lac du Bonnet branch.....	24
The West Selkirk & Lake Winnipeg branch.....	24
The New Westminster & Vancouver branch.....	12

Total.....150 miles

And it was resolved that the Company may issue, in lieu of bonds, consolidated debenture stock, not to exceed in the aggregate \$15,000 a mile, bearing interest at 4%.

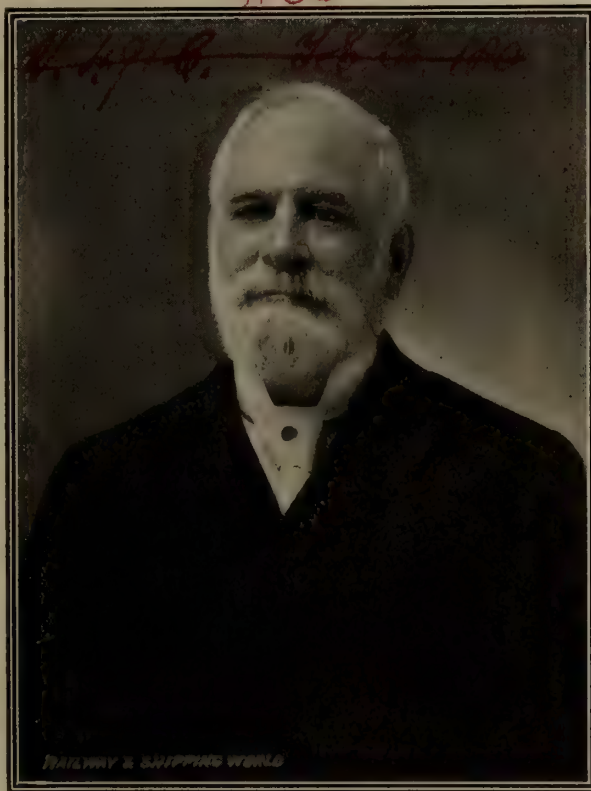
The expenditure on capital account during 1899 of \$1,070,315.36 for rolling stock in addition to the amount authorized at the last annual meeting was approved.

The following further expenditure on capital account was authorized:

Additional station & terminal facilities at Montreal & Winnipeg.....	\$ 750,000
Wharves & other terminal works at Vancouver.....	98,817
Improvements to permanent way..	978,744
Increased yards & other facilities at various points on the system.....	461,928
Additional rolling stock.....	975,000

\$3,264,489

A number of by-laws passed by the directors were approved, providing for an office to be known as the Chairman of the Board to be held by one of the directors who shall ex officio be one of the executive committee of the directors & shall, when present, preside at meetings of shareholders, directors & the executive committee, the office of the Chairman of the Board & the office of President of the Company not to be held at any time by the same director; that the President or executive committee may appoint an Assistant Secretary of the Co.; establishing tolls for passengers & freight between Lethbridge, Alta., & Nelson, B.C.; providing that at the first meeting of the directors after each election they shall elect from their own number a Chairman of the Board, a President & a Vice-President, & that the board may also appoint two or more additional Vice-Presidents, to be



C. R. PALMER,

General Storekeeper, Intercolonial Railway.

appurtenances, the C.P.R. Co. to pay as rental interest at 5% on bonds which the G.N.W.C. Co. may issue to the extent of \$875,000, & on any additional bonds which the G.N.W.C. Co. may issue with the consent of the C.P.R. Co., the latter Co. being entitled also to the net proceeds of all lands which the G.N.W.C. Co. may be entitled to from the Dominion. The lease was approved.

The meeting approved of a lease from the Manitoba & Northwestern Ry. Co. to the C.P.R. Co. of its property & franchises, including a sub-lease of the Saskatchewan & Western Ry. under lease to the M. & N.W.R. Co. The

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NEXT ANNUAL MEETING at Montreal, Oct. 17 & 18, 1900.

Canadian Ticket Agents' Association.

PRESIDENT, F. W. Churchill, Collingwood, Ont.; 1st
VICE-PRESIDENT, W. Jackson, Clinton, Ont.; 2nd VICE-
PRESIDENT, M. McNamara, Walkerton, Ont.; 3rd
VICE-PRESIDENT, W. H. C. McKay, St. John, N.B.;
SEC. TREAS., E. de la Hooke, London, Ont.; AUDITOR,
S. H. Palmer, St. Thomas, Ont.

EXECUTIVE COMMITTEE, W. H. Harper, Chatham,
Ont.; C. E. Morgan, Hamilton, Ont.; T. Long, Port
Hope, Ont.; J. W. Tierney, Arnprior, Ont.; C. C.
Young, London, Ont.

NEXT ANNUAL MEETING at Hamilton, Ont., Oct. 10,
1900.

National Association Marine Engineers of Canada.

HONORARY PRESIDENT, O. P. St. John, Toronto;
PRES., A. J. Woodward, Toronto; 1st VICE-PRES., R.
Craig, Toronto; and VICE-PRES., E. Abbey, Toronto.

COUNCIL, W. Jamison, Windsor, Ont.; J. Payne, Col-
lingwood, Ont.; O. Flummerfelt, St. Catharines, Ont.;
J. Currie & S. T. Wilson, Toronto.

TREASURER, H. Brownley, Toronto; SECRETARY, S.
A. Mills, Toronto.

Track Supply Association.

PRESIDENT.—F. E. Came, Montreal.
FIRST VICE-PRESIDENT.—R. J. Davidson, Hillburn,
N.Y.
SECOND VICE-PRESIDENT.—W. H. Frisby, Three Riv-
ers, Mich.
HON. SECRETARY-TREASURER.—Acton Burrows, 33
Melinda Street, Toronto.
NEXT ANNUAL MEETING at Montreal, Oct. 16, 1900.

called Second Vice-President, Third Vice-
President & so on, no one of whom need
necessarily be a director; providing that after
1900 the annual general meeting of share-
holders shall be held on the 1st Wednesday
of October.

The following were unanimously elected
directors: Lord Strathcona, Sir Wm. Van
Horne, T. G. Shaughnessy, R. B. Angus, E.
B. Osler, Sir Sandford Fleming, G. R. Harris,
W. D. Matthews, Hon. D. MacInnes, T.
Skinner, J. W. Mackay, General S. Thomas,
C. R. Hosmer.

At a meeting of the Board held subsequent-
ly, Sir Wm. Van Horne was re-elected Chair-
man, & T. G. Shaughnessy President, &
the following were appointed the Executive Com-
mittee: Sir Wm. Van Horne, T. G. Shaugh-
nessy, Lord Strathcona, R. B. Angus, E. B.
Osler. The Executive Committee heretofore
consisted of 4 members, Mr. Osler having
now been added. No election was made to
be the office of Vice-President. D. McNicoll
was appointed Second Vice-President & Gen-
eral Manager.

G.T.R. SEMI-ANNUAL MEETING.

The semi-annual meeting was held at the
Cannon St. Hotel, London, Eng., April 5,
the President, Sir C. Rivers Wilson, in the
chair. The report for the ½-year ended Dec.
31, 1899, was presented as follows:

Following is a comparison of the ½-year's
revenue account with that of the correspond-
ing ½-year, ended Dec. 31, 1898:—

Dec. 31, 1898.		Dec. 31, 1899.
£2,140,580	Gross receipts	£2,423,798 17 6
1,428,000	Deduct working expenses, including taxes, being at the rate of 65.80%, as com- pared with 66.71% in 1898.	1,594,750 4 9
712,580	Net traffic receipts	829,048 12 9
12,031	Add received from Interna- tional Bridge Co.	12,930 12 9
4,742	Interest on Toledo, Saginaw & Muskegon bonds	4,415 3 10
3,087	Interest on Central Vermont Ry. bonds	3,087 10 8
64,781	Interest on securities of con- trolled lines & on St. Clair Tunnel bonds acquired by issue of G.T. 4% debenture stock	64,781 3 6
20,138	Balance of general interest ac- count	21,924 14 5
£2818,259	Net revenue receipts	£936,187 17 11

Following are the net revenue charges for
the ½-year:

Rents (leased lines)	£73,174 8 3
Interest on debenture stocks & bonds of the Co.	443,578 18 8
Interest on debenture stock & bonds of lines consolidated with the G.T. Co.	72,406 4 10
Interest on Michigan Air Line bonds	7,750 0 0
	596,909 11 9

Amount advanced to Chicago
& G.T. Co., under
traffic agreements towards
payment of interest on its
bonds, ½-year to Dec. 31,
for which interest coupons
are held 19,258 4 8 || Less Detroit, Grand Haven & Milwaukee Co. surplus ½-year to Dec. 31 | 5,088 7 8 |
| | 14,169 17 0 |
| | £611,079 8 9 |

Leaving a net revenue balance for the
½-year of

£325,108 9 2
£936,187 17 11

The above amount of £325,108 9s. 2d.,
added to the balance from last ½-year of
£2,052 6s. 0d., makes a total of £327,160 15s.
2d., from which the directors recommend the
declaration of the following dividend, viz:—

£2% on the 4% guaranteed stock	£104,395 17 6
£4% on the 1st preference stock	136,673 4 0
(making with the £1% paid for the ½- year to June 30, 1899, the full dividend for 1899)	
£3 5s. 7% on the 2nd preference stock	82,173 0 5
	£323,242 1 11

leaving £3,918 13s. 3d., to be carried forward
to next ½-year's accounts.

The net revenue balance for the ½-year
ended Dec. 31, 1898, was £208,841 12s. 3d.
The result of the past ½-year's working is,
therefore, more favourable by £116,266 16s.
11d. For the 12 months ended Dec. 31, 1899,
the net revenue balance was £461,512 18s.
0d., compared with £315,493 10s. 10d., for
1898, an improvement of £146,019 7s. 2d.

This table gives a comparison of receipts
for the ½-years ended Dec. 31, 1899 & 1898.

Description of receipts.	1899.	1898.	Increase.
	£	£	£
Passengers	685,249	581,429	103,820
Mails and express	110,281	104,632	5,649
Freight & live stock	1,561,672	1,385,711	172,961
Miscellaneous	66,597	65,808	789
	2,423,799	2,140,580	283,219

TRAFFIC STATISTICS.

	½ year, Dec. 31, 1899.	½ year, Dec. 31, 1898.	In- crease	De- crease
Passengers carried	3,761,262	3,833,614	—	72,352
Average fare per passenger	3s. 7½d.	3s. 0½d.	7½d.	—
Tons of freight and live stock	5,422,537	4,756,205	666,332	—
Average rate per ton	5s. 9d.	5s. 10d.	—	1d.
Earnings per train mile	63.71d.	59.92d.	3.79d.	—

The average receipt per ton per mile on the
entire freight business was 0.62 of a cent,
compared with 0.68 of a cent in the corre-
sponding ½-year.

The working expenses, including taxes,
amounted in the ½ year to £1,594,750, or
65.80% of the gross receipts, as compared with
£1,428,000, or 66.71%; an increase in amount
of £166,750, but a decrease in the proportion
to the gross receipts of 0.91%.

This table gives a comparison of the re-
venue expenditure, including taxes, for the
½-year ended Dec. 31, 1899 & 1898:

Description of expenditure.	1899.	1898.	In- crease.	De- crease.
	£	£	£	£
Maintenance of way, & struc- tures	421,461	397,110	24,351	—
Maintenance of equipment	283,393	213,143	70,250	—
Conducting transportation	802,501	731,247	71,254	—
General expenses	55,884	55,042	842	—
Total	£1,563,239	£1,396,542	£166,697	—
Percentage of gross receipts	64.50	65.24	—	0.74
Expenditure per train-mile	41.09d.	39.09d.	2d.	—

The train mileage of the ½-year compares
with that for the ½-year ended Dec. 31, 1898,
as follows:—

Description of mileage.	1899.	1898.	Increase.
Passenger	3,356,870	3,270,604	86,266
Freight	5,218,334	4,758,402	459,932
Mixed trains	555,947	544,519	11,428
Total	9,131,151	8,573,525	557,626

The gross receipts for the ½-year show an increase of £283,219, or 13.23%; the working expenses, including taxes, an increase of £166,750, or 11.68%; & the train mileage an increase of 557,626, or 6.50%.

This following table exhibits the gross receipts, working expenses, & net traffic receipts for the past 8 years:

Year.	Gross receipts.	Working expenses.		Net traffic receipts.
		Amount.	Percentage of gross receipts.	
	£	£		£
1892	4,028,865	2,914,876	72.35	1,113,989.
1893	4,062,217	2,942,548	72.43	1,119,669
1894	3,649,957	2,625,476	71.93	1,024,481
1895	3,637,055	2,610,862	71.78	1,026,193
1896	3,819,074	2,713,667	71.06	1,105,407
1897	4,003,717	2,631,447	65.72	1,372,270
1898	4,012,313	2,671,883	66.59	1,340,430
1899	4,407,015	2,892,994	65.65	1,514,021

No additions to the rolling stock have been made at the expense of capital during the ½-year. Ten passenger engines were built, & 9 freight engines purchased on revenue account during the ½-year, & there remained at Dec. 31, 1899, 11 engines in excess of the official stock. There have been built in the Co.'s shops, by way of renewal, 5 passenger, 2 baggage, & 215 box cars, & there was, at Dec. 31, 1899, £151,325 os. 5d. at the credit of the car renewal fund, to be applied to the replacement of cars out of service. There was also at that date £21,291 os. 2d. at the credit of the engine renewal fund.

£93,238 18s. 6d. was expended on capital during the ½ year, of which £22,714 8s. 7d. was on account of the construction of additional double track at various points on the line; £27,163 os. 11d. for the further equipment of engines & freight cars with air-brakes & automatic couplers in compliance with the U.S. "Safety Appliance Act"; & £41,189 10s. 11d. on account of the purchase of additional land, mainly for the purpose of improving the terminal accommodation at Montreal by which the increased traffic will be more promptly & economically handled. The Intercolonial Ry., under the agreement of Feb., 1, 1898, participates in the use of the Co.'s terminal facilities at Montreal, & a proportion of the cost of acquiring this additional property, or interest at the rate of 4% thereon, will be payable by that line in the terms of the agreement.

In addition to £30,805 being the proportion chargeable to the revenue of the ½ year of the cost of reconstructing the Victoria Jubilee bridge, & of the expenditure for renewing the bridges between Montreal & Portland, & on the Southern division on the plan mentioned in previous reports, £20,000 has been specially included in the maintenance of way charges & placed to the credit of the renewal of bridges suspense account, which now stands at £46,754 12s. 0d.

The gross receipts of the Chicago & G.T.R. Co. for the ½ year to Dec. 31, 1899, amounted to £406,786, against £373,555 in 1898, an increase of £33,231. The working expenses were £333,796, against £299,355, an increase of £34,441; the net profit being £72,990, against £74,200, a decrease of £1,210. The net revenue charges for the ½ year were £92,248, against £88,755 in 1898, so that there was a deficiency in meeting the net revenue charges in 1899 of £19,258, compared with a deficiency for 1898 of £14,555. The above deficiency of £19,258 is payable by the G.T. Co., under traffic agreements. The number of passengers carried during the ½ year was 659,223, against 622,847, an increase of 36,376, or 5.84%, and the passenger train receipts, including mails and express receipts, were £132,165, against £115,068, an increase of £17,097, or 14.86%. The quantity of freight moved during the ½ year was 1,241,316 tons, against 1,005,054 in 1898, an increase of 236,-

262 or 23.51%, & the receipts from this traffic were £274,012, against £258,175 in 1898, an increase of £15,837, or 6.13%.

The gross receipts of the Detroit, Grand Haven & Milwaukee Ry. for the ½ year to Dec. 31, 1899, were £115,907, against £106,379 in 1898, an increase of £9,528; the working expenses were £73,769, against £72,492, an increase of \$1,277; leaving a balance of £42,138, against £33,887, and showing an increased net revenue of £8,251, compared with the corresponding ½ year of 1898. The net revenue charges for the ½ year were £37,050, against £37,768 in 1898, so that there was a surplus for the ½ year after meeting the net revenue charges of £5,088, as compared with a deficiency of £3,881 for the corresponding period of 1898. The deficiency for the year 1899 amounted to £17,280. The number of passengers carried during the ½ year was 365,965, against 330,357, an increase of 35,608, or 10.78%, & the passenger receipts, including mails & express receipts, were £57,098, against £51,153, an increase of £5,945, or 11.62%. The quantity of freight moved was 351,469 tons, against 285,202 in 1898, an increase of 66,267 or 23.24%, & the receipts from freight traffic were £56,992, against £54,318 in 1898, an increase of £2,674, or 4.92%.

The proprietors were informed at the general meeting in Oct. last, that the Chicago & G.T. board had intimated its intention of promulgating, at an early date, a scheme for the rearrangement of the capital of that Co. This proceeding was rendered indispensable by the maturing of a large amount of 1st mortgage bonds on Jan. 1, 1900, together with the urgent necessity of arranging for the settlement of the Co.'s large floating debt, & of providing means for improving the physical condition of the line & its equipment, thus placing the Co. on a more equal footing with the other competing railways out of Chicago. With a view of effecting these objects the C. & G.T. Co. formulated a plan of re-organization, to the terms of which your directors have considered it desirable, in the interest of the G.T. Co., to assent, & inasmuch as the traffic agreement between the two companies in connection with the C. & G.T. 1st mortgage bonds maturing on Jan. 1, 1900, terminated on that date, the directors, in further support of the scheme, have expressed their willingness, subject to the approval of the proprietors, to enter into a new agreement for the interchange of traffic with the C. & G.T. Co. when re-organized, whereby the interest at 4% on the bond capital of \$15,000,000, proposed to be created by that Co., will be fully secured. Proceedings have been instituted in the U.S. courts for carrying this scheme into effect, & in the meantime E. W. Meddaugh & H. B. Joy have been appointed, by the Circuit Court of the U.S., joint receivers, & they are now in charge of the property. The interests of the G.T. Co. in these proceedings are being carefully watched, & are receiving the special attention of the board.

The Central Vermont line was taken over by the new management on May 1, last, & the directors are pleased to report that the net revenue of that Co. was considerably in excess of the fixed charges for the 8 months ended Dec. 31, 1899, & therefore no liability was incurred by the G.T. Co. in respect to the traffic agreement between the two companies. Securities of the C.V.R. Co. have been received in substitution of those of the former Co. held by the G.T. Co., & in settlement of traffic balances & advances. The securities now held consist of \$2,185,100 common stock & \$1,583,300 of 4% 21-year 1st mortgage bonds.

A patriotic fund having in Jan. last been organized in Canada, under the patronage of the Queen, for the relief of her Canadian subjects disabled in the war in South Africa, or their dependents, the directors authorized, on

behalf of the Co., a subscription of \$15,000 thereto, which they feel confident will receive the cordial approval of the proprietors.

The work in connection with the erection of the new general offices at Montreal, on the site granted to the Co. by the municipality, has been retarded by the difficulty of obtaining delivery of the necessary material. £17,465 15s. 1d. on this account is included in the working expenses of the past ½ year.

The retiring directors are G. Von Chauvin, Col. F. Firebrace, A. W. Smithers, & Sir W. L. Young, all of whom are eligible, & offer themselves for re-election. F. Whinney, one of the auditors in London, & T. Davidson, one of the auditors in Canada, retire at the ensuing meeting. They are eligible & offer themselves for re-election.

Following are extracts from the appendices to the report:

The mileage of the G.T.R. on Dec. 31, 1898, including lines east of St. Clair & Detroit rivers & the Detroit & Michigan Air Line, was, length of roadway, 3,506 miles; 2nd track, 426¼ miles; sidings, 819¼ miles; total, 4,752 miles.

The Superintendent of Motive Power reports the expenditure, mileage, etc., as follows:

	Rate of Expenses per Mile.			
	Train	Engine.	Car.	
½-year ended	Cents.	Cents.	Cents.	
	Dec., 1899	Dec., 1898	Dec., 1899	Dec., 1898
Expenditure	2,419,632	2,082,913	21.44	19.80
Train mileage.	9,131,151	8,573,825	26.50	24.29

An increase in expenditure of \$336,739, or 16.17%, compared with an increase in train miles of 557,626, or 6.5%, & with an increase in the ton miles of 227,615,197, or 22.8%.

	Passenger trains.	Freight trains.	Mixed trains.
The average number of cars moved per train was.....	4.6	24.8	10.5
And for the corresponding period.....	4.6	24.8	10.5

The comparative cost of repairs per train, engine & car mile was:—

	Repairs & renewals of locomotives.		All repairing charges, including shop machinery, tools, & marine equipment, &c.	
	1899.	1898.	1899.	1898.
Train	Cents. 6.07	Cents. 4.81	Cents. 7.53	Cents. 6.19
Engine	4.91	3.92	6.09	5.04
Car	0.37	0.30	0.46	0.38

The superintendent of the car department reports expenditure, mileage, &c., as follows:—

4,400 blocks, A.P.R., 200 blocks "Darlington" marked.

Enameled Iron Station Names.

Guaranteed not to fade or in any way to perish from exposure.

As used on the Canadian Pacific & Canadian Northern Railways. Sign 12 ins. high. Letters 9 ins. high. Length according to number of letters in name. The sign shown is 45 ins. long.



Style no. 1. White letters on blue ground.

Twenty-nine of these signs supplied the C.P.R. Co. for the Crow's Nest Pass Ry. averaged 6½ ft. in length, the longest being 11 ft. 2 ins. & the shortest 3 ft. 9 ins.

Mr. Wm. Whyte, Manager of the Canadian Pacific Railway Co.'s lines west of Fort William, writes,—“I have pleasure in stating that I am very well satisfied with the enameled iron signs supplied by the Acton Burrows Co. for station names on the western lines of this Company. They have now been in use for some time & have proved very satisfactory. The lettering is clear & distinct & the signs have proved to be impervious to the weather. They have a brighter & neater appearance & are very much more satisfactory than painted wooden ones, & considering their lasting qualities will be found more economical.”

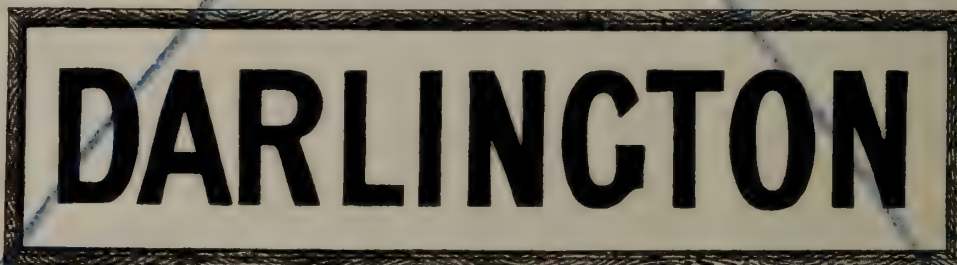
Mr. H. P. Timmerman, General Superintendent of the Atlantic Division of the Canadian Pacific Ry., writes,—“The enameled iron station names supplied by the Acton Burrows Co., in 1898, for a number of stations on this division, have proved very satisfactory. The letters are well formed & distinct, & the signs present a clean, bright appearance, being just as good now as when they were new.”



Style no. 2, as used on the Grand Trunk Ry. System. Black letters on white ground. This sign is 14 ins. high by 7 ft. long. Length varies with number of letters in name of station.



Style no. 3, as used on the Pennsylvania Railroad. White letters on black ground. This sign is 12 ins. high by 6 ft. long. Length varies with number of letters in name of station.



Style no. 4, as used on the Northeastern Railway of England. Dark brown letters on light ground, framed in wood. This sign is 6 x 18 ft.

These signs have long been used on most European railways, & for a number of years on the Pennsylvania R.R., the New York Central & Hudson River R.R., the Manhattan Elevated R.R., the Long Island R.R., & many other lines in the United States. They are also being extensively used in Canada & are giving complete satisfaction as the best outdoor signs produced.

They can be made in any color, size, or shape.

Estimates promptly furnished on application.

The Acton Burrows Co., 29 Melinda Street, Toronto.

Sole Agents for Canada for The Imperial Enamel Co. of Birmingham, England.

	½-year ended	
	Dec. 31, 1898.	Dec. 31, 1899.
Total cost repairs & renewals..	\$509,956	\$691,386
	Miles run by cars.	
Passenger.....	16,361,501	16,907,628
Freight.....	122,126,421	133,896,424
Total.....	138,687,922	150,804,052
Cost per mile car.....	.366c	.458c
" train.....	5.91c	7.57c

An increase in expenditure of \$184,430, or 36.4%, with an increase in car miles of 12,116, 130, or 8.7%.

The capital expenditure for the ½-year was as follows:—

	£	s.	d.
Instalment on Portland city elevator loan	445	9	7
Sundry station and buildings, (new works)	1,685	18	7
Double track.....	22,714	8	7
Union Station, Toronto.....	40	9	11
Equipment of engines & freight cars with air brakes and automatic couplers; air whistles for passenger cars, &c.,	27,163	0	11
Land at Montreal.....	40,834	1	7
" Toronto, &c.....	355	9	4
	93,238	18	6
Deduct amount received for sale of old rails, Chemong branch.....	1,128	3	11
	£92,110	14	7

The revenue account for the ½-year was as follows:—

	RECEIPTS.					
	£	s.	d.	£	s.	d.
Passengers.....	691,306	4	4			
Less—						
International						
Bridge tolls..	986	9	6			
St. Clair Tunnel						
tolls.....	4,791	12	3			
Toledo, Saginaw, & Muskogon Ry, under traffic agreement.....	147	9	5			
Cincinnati, Saginaw, & Mackinaw R.R., under traffic agreement....	131	5	11			
	6,056	17	1			
Mails & express.				685,249	7	3
Freight & live stock.....	1,643,793	2	2	110,280	16	5
Less—						
Cartage, &c.....	48,819	17	10			
International						
Bridge tolls..	10,168	5	9			
St. Clair Tunnel						
tolls.....	18,749	8	4			
Toledo, Saginaw, & Muskogon Ry, under traffic agreement....	3,347	10	10			
Cincinnati, Saginaw, & Mackinaw R.R., under traffic agreement....	1,036	12	0			
	82,121	14	9			
Miscellaneous receipts, rents, tolls, &c.....				66,597	6	5
	£2,423,798	17	6			

	EXPENDITURE.			
	£	s.	d.	
Maintenance of Way & Structures	421,460	18	5	
Maintenance of Equipment.....	283,392	17	3	
Conducting Transportation.....	802,500	16	11	
General Expenses.....	55,884	14	8	
Total Working Expenses....	64.50%	1,563,239	7	3
Taxes.....	1.30%	31,510	17	0
	65.80%	1,594,750	4	9
Balance to net revenue account.....		829,048	12	
		£2,423,798	17	6

Dec. 31, 1898.	STATEMENT OF TRAIN MILEAGE.	Dec. 31, 1899.
3,270,604	Passenger trains.....	3,356,870
4,758,402	Freight trains.....	5,218,334
544,519	Mixed trains.....	555,947
8,573,525		9,131,151

In moving the adoption of the report Sir Rivers Wilson praised the ability & energy of General Manager Hays & his staff. He regretfully announced the retirement of G. B. Reeve, General Traffic Manager, after long, successful & faithful services, quite exceptional in character, in which he had brought to bear intelligence of a very high order & said the position would be filled by promotions in the staff. He believed the reorganization of the Chicago & G.T. would be carried out though one-third of the 1st bond-holders still dissented. There was no indication of better freight rates, such powerful interests as those of the Pennsylvania R.R., & the Vanderbilts being unable to maintain the tariff, nor could the great financial interests of New York enforce fixed rates. This was difficult to explain, but it seemed to him that the great shippers were able to compel reductions. Some shippers were never known to pay full rate, & the smaller & weaker struggling shippers were obliterated. The remedy was legalised pooling. The bridges of the Portland division would be reconstructed in time for the winter traffic. The Central Vermont was doing most satisfactory work, the Detroit & Grand Haven was doing fairly well & the Chicago & G.T. was doing badly. The meeting applauded Sir Rivers Wilson's tribute to the noble & patriotic action of Canada in connection with the war, & said the G.T. had contributed \$15,000 to the Patriotic Fund. The meeting cheered the unanimously endorsed resolution for the reorganization of the Chicago & G.T. road & unanimously adopted everything.

Free Passes for Bridge Directors.

In the Court of Appeal at Toronto, April 4, in the case of the Niagara Falls Suspension Bridge Co. vs. the G.T.R. Co., the defendant appealed from judgment of Meredith, C.J., in favor of plaintiff, & directing a reference as to damages. Action by above-named Bridge Co. & the Niagara Falls International Bridge Co., incorporated respectively in Canada & in New York State, under an agreement made in October, 1853, between the plaintiff & the

Great Western Ry. Co. (and confirmed 38 Vict. (D) ch. 72), now amalgamated with defendant, to have it ascertained to what companies & persons the defendant & the Great Western Ry. Co. have extended the privileges of crossing the plaintiff's bridge over the Niagara River near Niagara Falls, as provided by the agreement, & to have it declared that the plaintiff is entitled to annual free tickets for its directors & officers to pass over the respective railways crossing the bridge, & for an order directing defendant to supply such annual free tickets in future, & for an account for refusal to supply them in the past. The trial judge refused specific performance, but directed an account for damages for non-supply of free tickets in the past, holding that he was bound by Niagara Falls, etc., Co. v. G. W. R. Company, 25 U.C.R. 313, to decide that upon the true construction of the 11th clause of the agreement the defendant was bound to procure annual free tickets. It was contended inter alia for appellant that upon the proper construction of an agreement made between the parties in 1875, all liability to procure these tickets was discharged, & an increased annual rent fixed for the use by the defendant of the railway floor of the bridge, that the measure of damages was not the amount paid by plaintiff for free tickets since defendant refused to supply them, & that the above case was a special case, & therefore nothing in it can be held to be res judicata except the precise question stated for the Court & determined by the judgment. After argument judgment was reserved.

C.P.R. Earnings & Expenses.

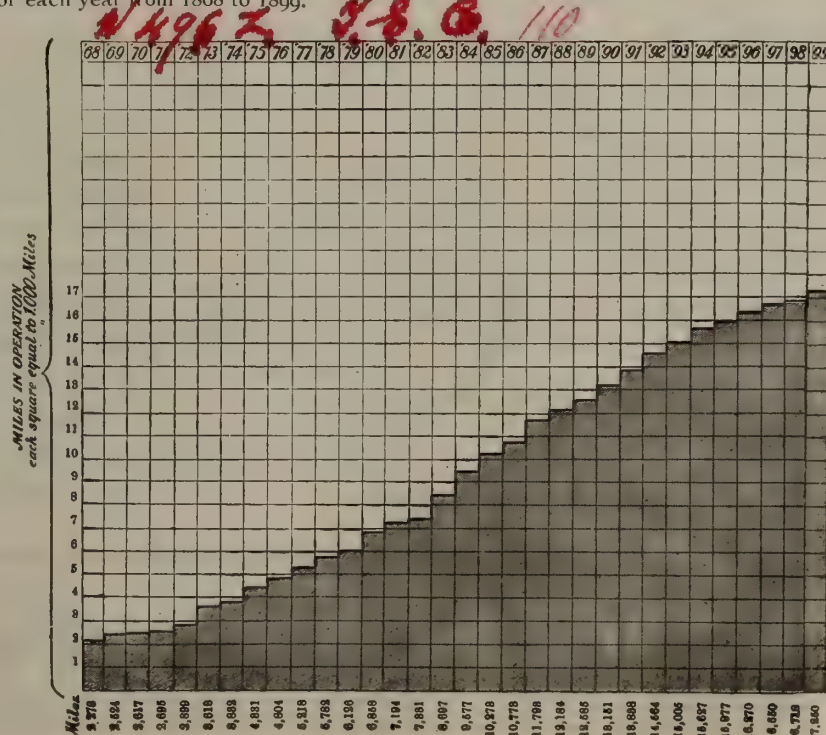
Gross earnings, working expenses, net profits and increases over 1899, from Jan. 1, 1900:

	Earnings.	Expenses.	Net Profits.	Increase.
Jan. \$2,152,071.32	\$1,460,501.71	\$691,569.61	\$74,035.75	
Feb. 1,954,087.59	1,331,355.34	622,732.25	23,030.77	
	\$4,106,158.91	\$2,791,857.05	\$1,314,301.86	\$97,066.52

Approximate earnings for Mar., \$2,280,000, against \$2,098,000 in Mar., 1899; increase, \$182,000.

Mileage of Canadian Railways,

The following diagram shows the miles of railway in operation in the Dominion on June 30 of each year from 1868 to 1899.



SUBSIDIARY LINES.

DULUTH, SOUTH SHORE & ATLANTIC.—
Approximate earnings for Mar., \$210,474;
increase over Mar., 1899, \$49,567.
Net earnings for Jan., \$63,230, against
\$51,849 for corresponding period.

MINERAL RANGE, HANCOCK & CALUMET.—
Approximate earnings for Mar., \$40,258;
increase over Mar., 1899, \$13,538.

MINNEAPOLIS, ST. PAUL & SAULT STE.
MARIE.—Approximate earnings for Mar.,
\$417,752; increase over Mar., 1899, \$81,228.
Net earnings for 6 months to Dec. 31, 1899,
\$1,487,278, against \$1,111,017 for correspond-
ing period.

Canadian Pacific Railway Land Sales.

	Acres.		Amount.	
	1900	1899	1900	1899
Jan.....	31,486	14,718	\$ 100,857.85	\$ 40,411.35
Feb.....	23,613	13,747	75,771.19	43,371.69
Mar.....	31,183	24,045	97,777.79	75,460.76
	86,282	52,510	\$274,406.83	\$165,243.80

Grand Trunk Earnings, Expenses, &c.

The following statement of earnings supplied from the Montreal office, includes the G.T. of Canada, & the Detroit, Grand Haven & Milwaukee Rys., the earnings of the Chicago & G.T., which is in the hands of receivers, being omitted:

	1900	1899	Increase	Decrease
Jan....	\$ 1,819,988	\$ 1,606,065	\$ 213,923	.....
Feb.....	1,587,923	1,595,549	82,374	.....
Mar....	1,830,834	1,798,968	31,866	.....
	\$ 5,238,745	\$ 4,910,582	\$ 328,163	.....

The following figures are issued from the London, Eng., office:

GRAND TRUNK RAILWAY.

Revenue statement for Feb., 1900:

	1900	1899	Increase	Decrease
Gross receipts.....	£314,100	£297,600	£16,500	.....
Working expenses..	236,700	222,700	14,000	.....
Net profit.....	£ 77,400	£ 74,900	£ 2,500	.....

Aggregate Jan. 1 to Feb. 28, 1900:

	1900	1899	Increase	Decrease
Gross receipts.....	£672,200	£613,000	£59,200	.....
Working expenses..	493,900	450,100	43,800	.....
Net profit.....	£178,300	£162,900	£15,400	.....

DETROIT, GRAND HAVEN AND MILWAUKEE RY.

Revenue statement for Feb., 1900:

	1900	1899	Increase	Decrease
Gross receipts.....	£12,200	£11,700	£ 500	.....
Working expenses..	11,100	11,600	.....	500
Net profit....	£ 1,100	£ 100	£1,000	.....

Aggregate Jan. 1 to Feb. 28, 1900:

	1900	1899	Increase	Decrease
Gross receipts.....	£28,000	£26,300	£1,700	.....
Working expenses..	24,100	24,100	.....	.....
Net profit.....	£ 3,900	£ 2,200	£1,700	.....

RAILWAY FINANCE, MEETINGS, &c.

The Buffalo & Lake Huron Ry. Co. gives notice that it is prepared to receive the 1st mortgage bonds for examination, prior to issuing, free of charge, new sheets of coupons for the next 20 years, in accordance with the provision contained in the mortgage.

Calgary & Edmonton net earnings for Feb., \$7,962.20, against \$9,201.58, in Feb. 1899.

Chignecto Marine Transport Ry.—The directors have issued a circular to those who have invested money in the undertaking stating that, in view of further negotiations with the Dominion Government to obtain a re-statement of the Co. or compensation for being deprived of the subsidy, it is desirable that there should be united action on the part

of all the holders of the Co.'s issues—viz, debentures, preference shares, & ordinary shares. In order to effect this, arrangements have been made to deposit the whole of the issues at Martin's Bank, London, Eng. The following will act as trustees for all the investors, & represent the Co. in the negotiations with the Dominion Government, in furtherance of which Mr. Provand will shortly again proceed to Ottawa:—R. B. Martin, M.P., E. Bond, M.P., & J. Van Raalte. (Oct. '99, pg. 287.)

Columbia & Kootenay Railway & Navigation Co.—The annual meeting will be held in Vancouver May 2.

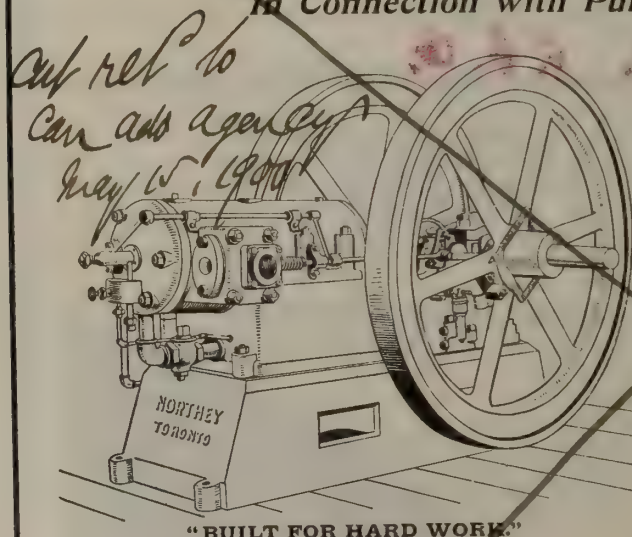
Dominion Atlantic net earnings for 2 months to Feb. 28, \$85,200, against \$75,267, for corresponding period.

The annual meeting was held in London, Eng., Mar. 30, President C. F. Kemp in the chair. A cablegram says there was a large attendance of shareholders. The policy of the Co. was clearly indicated in the various directors' speeches & unanimously approved. The retiring directors were re-elected as follows: C. F. Kemp, T. R. Ronald & A. Denny, the Dumbarton shipbuilder. After the announcement of the dividend a vote of thanks to the Superintendent, Secretary & other leading officers was passed.

Fitchburg.—The proposed lease of this line to the Boston & Maine was ratified Mar. 22, at a meeting of the stockholders of the former road by an overwhelming vote. The result was reached after a four hours' contest, in which every new proposition for delay was defeated by the "Protective Committee." The Fitchburg road is about 475 miles long, & runs from Boston to Rotterdam Jct. through the Hoosac tunnel. The charter for the building of this road was let in 1842, & the line was opened three years later from East

The Northey Gas or Gasoline Engine.

In Connection with Pumping Machinery for Tank Duty.



Railway Officials will find the Northey Engine to be a marked improvement over steam or other forms of power for this duty. It is simple of construction, and easily managed, necessitating only the turn of a fly-wheel to start, while it can be going at full speed in a few seconds and be shut down on the instant. Needs no engineer to look after it, the station hands can do all that is required, while it will run for hours at a time with little or no attention. The Engine is compactly built and of the best materials; it uses either gas or gasoline for fuel, and its safety and economy with either have proved it to be the most satisfactory power in the market.

We will cheerfully send Booklet and every information upon request.

The Northey Mfg. Co., Limited, 1032 KING ST. SUBWAY, Toronto, Ont.

Cambridge to Fitchburg. Three years after that it was extended to Boston, & since that time to Rotterdam Jct. The Fitchburg Co. owns a large grain elevator, & this with the road comes under the control of the Boston & Maine by the terms of the lease. This will make the Boston & Maine a feeder for all the steamship lines plying between Boston & European ports, & with one or two exceptions the steamers of all the lines will have to tie up to the Boston & Maine docks to receive their grain.

Great Northern (U.S.A.).—The New York Stock Exchange has listed \$9,000,000 additional preferred stock offered to stockholders, making the total stock listed to date \$99,000,000. The new issue was made for the purpose of acquiring \$3,500,000 additional capital stock of the Eastern Ry. Co. of Minnesota & \$5,500,000 additional of the capital stock of the Willmar & Sioux Falls Ry. Co. This acquisition gives to the G.N. Co. "the ownership of the entire capital stock of each of the said companies, & the shares so acquired will then become an asset of this company, subject to the disposition of its stock-holders by their direct action or through their board of directors. The mileage of the Eastern Ry. Co. of Minnesota is as follows:—main single track, 412.48 miles; 2nd main track, 17.28 miles. It also operates leased lines, 7.65 miles. The main track mileage of the Willmar & Sioux Falls Ry. Co. is 430.41 miles."

Great Northwest Central Ry.—Notice was given some time since that this Co. would apply to the Minister of Railways on Mar. 3, for the sanctioning of a lease of its line to the C.P.R. Co., & we are officially informed that the sanction has been given. The lease was approved at the recent annual meeting of the C.P.R. Co. (Feb., pg. 35.)

Hannaford vs. G.T.R.—The case of E. P. Hannaford, ex-Chief Engineer of the G.T.R., claiming \$6,000 damages for alleged wrongful dismissal, was resumed after an interval of two years in the Superior Court at Montreal, April 5. Mr. Hannaford sues for a year's salary, to which he claims he was entitled on being removed from that office on April 1, 1896. The chief point in the case seems to be whether, by the rules of his engagement & his status, he was entitled to a month's notice or to a year's notice. The Co. claims that he was given 2 months' notice, & the plaintiff alleges that the rule of 1 month's notice only applied to servants of the Co., & not to general officers. The Co. also claims that his dismissal was justified because among other reasons he had violated the Co.'s rules by employing the servants of the Co. for his own personal service at his house & that of his son, & that material, the property of the Co., had been used for his benefit at those places; that the plaintiff did not give satisfaction, & that he had recommended increased salaries to relatives & friends, & not in the Co.'s interests. Mr. Hannaford denies all these allegations, & states that all his actions were confirmed by the General Manager. On the re-opening of the case evidence was taken on behalf of Mr. Hannaford in rebuttal of the testimony already heard in support of the G.T.R.'s plea that he was in the habit of using the Co.'s men & materials for his private purposes at the Co.'s expense. Mr. Hannaford & several other witnesses were examined in this connection. Judgment was reserved.

Lake Erie & Detroit River.—The annual general meeting will be held at Walkerville May 1, to consider the proposed terms for amalgamation with the Erie & Huron Ry. Co., for the election of directors, etc.

The Montreal Incline Ry. Co. will not agree to the City Council's propositions in regard to the fares to be charged, in case its franchise should be renewed for another five years. The Council decided to notify the Co. it would

extend its franchise for the period mentioned upon condition that the rates charged should be 3c up & 3c down, or a return fare for 5c, children from 2 to 10 years half price, & under 2 free. Speaking of the reasons why the Co. would not accept the offer of the city, the Managing Director recently said: "The Council is not treating the Co. fairly in all the privileges demanded for a renewal of our franchise for five years. If we had to charge the fares demanded the Co. would be out of pocket. In no year have the gross earnings of the Company amounted to \$7,000. During the 15 years we have been operating the road, only 9 dividends have been paid. But comparatively little is paid out in wages & we can only afford to pay our secretary \$200 a year. If the city would guarantee 400,000 passengers a year we would agree to the 5c rate, but we have never carried 200,000 paid fares in a year. Were the Co. ever so willing it is not able to reduce its fares lower than they are at present. The road has cost the Co. \$56,000, but we would be willing to sell, if the city desired, at \$46,000. Some time ago a proposition was made that we should take \$25,000. This we will never do. We asked that a 25 years' renewal of contract should be given us at our present rates. The Council now wants us to reduce our fares a third & take a renewal for 5 years. There is no justice in such an offer. During the many years the Co. has been operating the road, an accident has never occurred, & I think this should be taken into consideration." The Co.'s contract expires May 1 next.

Montreal Warehousing Co.—At the annual meeting at the G.T.R., offices Montreal, Mar. 9, the following were elected:—C. M. Hays, President; W. M. Ramsay, Vice-President; G. H. Hanna, Secretary-Manager; C. Percy, G. B. Reeve, & T. Davidson, Directors.

Qu'Appelle, Long Lake & Saskatchewan net loss in operating for Feb. \$1,408.57 against net earnings of \$290.53 in Feb. 1899.

Quebec Central earnings for Feb., \$31,853.12, against \$27,187.48 in Feb., 1899; working expenses, \$23,877.86, against \$21,673.44; net earnings, \$7,975.26, against \$5,514.04.

Earnings, Jan. 1 to Feb. 28, \$60,513.06, against \$54,392.91 for corresponding period; working expenses, \$48,302.80, against \$44,025.65; net earnings, \$12,210.26, against \$10,367.26.

The Quebec & Lake St. John Ry. has obtained power from the Quebec Legislature to issue bonds for £170,000 on the Quebec-Roberval section of the road. The proceeds are to be used in improving the roadbed & terminals of this division, rolling stock, & in paying certain debts. The Co. is also authorized to issue 1st mortgage bonds, ranking after the prior lien bonds for £400,000, to redeem the £780,000 of 1st mortgage bonds, now out & in default, through non-payment of interest, due on July 1, 1899. The Co. may also issue £500,000 income bonds, ranking after the 1st mortgage bonds, bearing interest at 6%. These income bonds, together with the 1st mortgage bonds, will be used to exchange for the £780,000 of bonds to be retired, the excess being to cover the accrued interest on the old bonds.

Saskatchewan & Western.—The adjourned annual meeting was held at Winnipeg Mar. 15, when an agreement altering the terms of the lease of the Co.'s line to the Manitoba & Northwestern Ry. Co. was approved.

Shuswap & Okanagan.—The gross earnings for the six months ended Dec. 31, 1899, were \$20,889; expenses, \$12,533.

Temiscouata.—Armstrong & Co., London, Eng., recently announced that they have received a remittance for the payment of the guaranteed interest, due March 1, on the bonds of the St. Francis Branch of this line,

& that they were prepared to pay the same on behalf of the Treasurer of the Province of Quebec. This is the last payment under the guarantee arrangements. On the main line bonds default took place on Jan. 1, 1899.

Dominion Atlantic Railway Meeting.

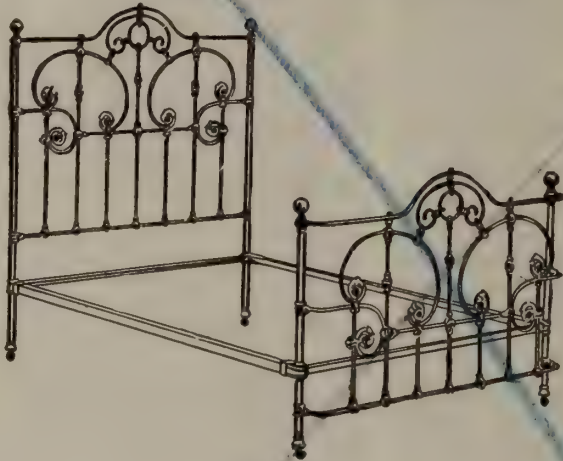
A brief notice of this meeting appears on page 102. Following are fuller particulars—C. F. Kemp, who presided, referred with great regret to the resignation by Mr. Tottill, through ill health, of his seat at the board after about 30 years' zealous service to the Co. In proposing the adoption of the report he stated that the gross increase in the receipts in the past year had been over £27,000, a fact which showed a vitality in the Co. which would, he hoped, work out in the future with a more satisfactory result than the directors could show on the present occasion. During the whole of the past year while their three steamers had been running, they had been subjected to a very strong & unfair competition, which had greatly depleted the profits. The Co. had the main line of railway from Halifax to Yarmouth, & the board has always felt—and their policy had been approved by the proprietors—that for the proper development of the Co.'s undertaking they must tap the American continent by means of a service of steamers between Yarmouth & Boston. Nova Scotia was a country of limited extent, & the Co. had to depend largely on the natural products of the soil; but if they could tap the American continent, & thus obtain from the enormous population of Boston & its neighborhood a large increase in goods & passenger traffic, as the directors believed might be done, they were satisfied not only that the future of the line was assured, but that the Co.'s undertaking would become a very important one. This was the directors' policy, & their experience of the past year had not caused any change in their views. What they intended to do was to see if an arrangement could be come to to put the competition on a healthier & better footing, so that they & their competitor might both be benefited; but if no arrangement could be come to he was distinctly of opinion that the matter should be fought out. Their railway was in first-rate order, & their ships had all been recently built, & were equipped with the most modern appliances. The expenses this year had increased very nearly to the same extent as the receipts, but the working of the steamers had added largely to the costs as well as to the traffic. The Co. had also been severely handicapped by the great advance in the price of coal. The expenses of working the line generally had been within a few pounds the same as they were in the previous year. In the exceptional circumstances of the past year, the directors had felt justified in taking £8,500 from the reserve at their disposal in the suspense account of £20,500, & in recommending a dividend of 3% on the preferred stock. They were convinced that the debenture interest was perfectly safe, & they believed that with fair & favourable conditions in the coming year, they would be able to present a very different statement of accounts to that submitted on the present occasion. He afterwards referred with satisfaction to the election as a director of Mr. Denny, of Dumbarton, & stated that that gentleman's special knowledge of shipping would be of great service to the Co. T. R. Ronald seconded the motion.

In the discussion which followed dissatisfaction was expressed at the result of the year's working & it was contended that further information ought to be given in the accounts as to the working of the railway & the steamers. The Chairman, in reply, stated that whatever further information could be given should be given in the future. A system had now been instituted by which the receipts

ESTABLISHED 1859.

PRACTICAL PROGRESSIVE METAL BEDSTEAD MAKERS.

New Catalogue now ready.



No. 238.



No. 325.

We claim to be the oldest manufacturers on the continent, and for twenty-five years the sole manufacturers in the Dominion.

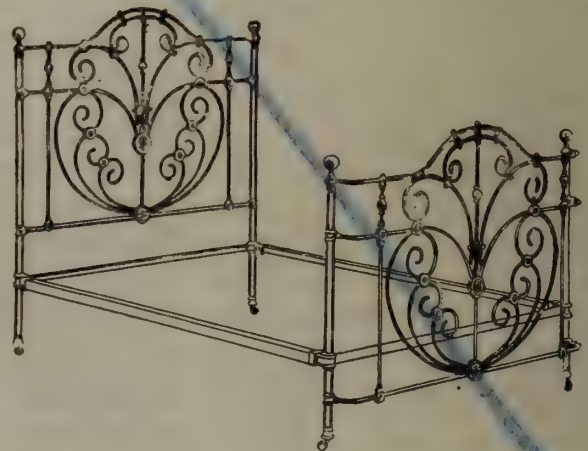
Recent additions to plant and premises put us in a position to meet competition from any quarter, either as regards price, style or finish.

No experiment with us. No bad fitting joints. All beds well proportioned, and enameled and lacquered in the best manner.

We are now manufacturing an extensive line of **ALL BRASS BEDS**, finished in the finest possible manner, and we defy competition in this line. We carry a large stock of the most desirable patterns at all times, and can make prompt shipments. Our beds are all quick sellers and carried by the most progressive dealers. Inspection solicited.



No. 330.



No. 240.

H. R. IVES & CO., MANUFACTURERS, **MONTREAL.**
QUEEN ST.,

& expenses of the ships would be dealt with separately from those of the railway, & this information the shareholders would have in the future. They had, however, always regarded the working of the railway & of the steamers as having one common result in every way. The directors had absolutely nothing to conceal from the proprietors. Mr. Ronald stated that the unfavourable result of the past year's working was entirely owing to the steamer competition, but the directors were absolutely convinced that this must be continued, unless an arrangement could be come to; & the expenses that might be incurred must be regarded as necessary in order to create a goodwill. The railway itself was worked very cheaply. The motion was adopted, & after the re-election of the directors, all of whom retired, a resolution was passed adopting by-laws as altered to meet the requirements or the Dominion Government, which, it was stated, desired to assimilate as far as possible the by-laws & regulations of the several Canadian railways.

Ventilation of Passenger Cars.

The drawing on this page shows the general plan of the Pennsylvania R.R. system of ventilation of passenger cars. It follows somewhat the principle of the old Spear stove system of car heating. Fresh air is taken in through a hood or intake at diagonally opposite corners of the car, allowing it to pass through a conduit underneath the floor of the car into the space bounded by the outside sill, the first intermediate sill & the floor & false bottom—this space extending the whole length of the car. From this space the air passes up through apertures in the floor into heater boxes situated alongside the rock plank, where it is warmed, & from which it passes out underneath every seat into the body of the car, & thence passes up through the globe ventilators in the deck to the outside air.

The handle directly above the instruction card, as shown on the left-hand section, controls an ordinary damper of the butterfly-valve type, which is either set open or set shut. The hood contains inside of it a flat valve hinged at the top, which is operated by a horizontal shaft below, protruding through the side of the box towards the centre of the car.

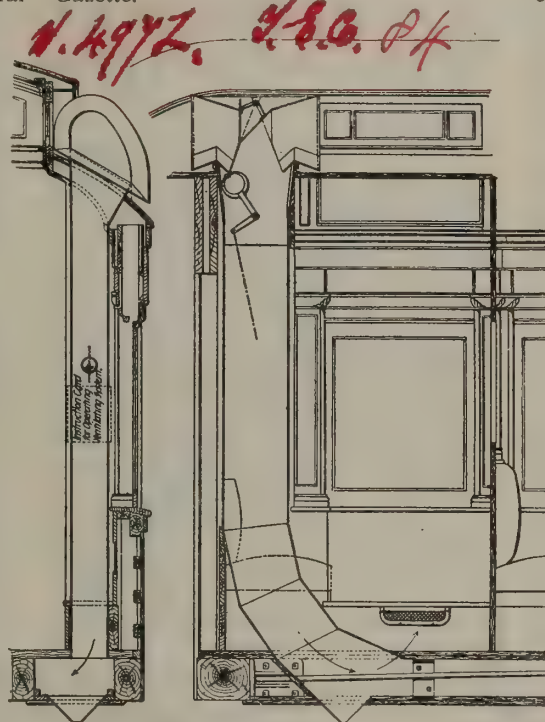
The instructions for operating the ventilating system are simple. In both corners of the car, the upper lever on the instruction box controls the flap valves in the hood & must always point in the direction in which the car is moving. The lower lever on this box must normally be kept "open." This lever controls the admission of air to the car & must only be moved to "shut" position when it is necessary to exclude foul or cold air. The instruction card also contains directions for regulating the globe ventilators at the top of the car.

Early in the consideration of the question of the ventilation of passenger cars, the engineers of the Pennsylvania R.R. were convinced that it should be worked out in connection with that of heating the car, & the system now in use is the result of a careful study of the problem of passing through a car during all seasons of the year a sufficient quantity of fresh air to maintain a wholesome atmosphere for, say, 60 persons, keeping the car comfortably warmed in winter & free from smoke, cinders & dust at all times.

It is generally agreed that perfect ventilation requires 3,000 cu. ft. of air for each person an hour, which for 60 persons would amount to 180,000 cu. ft. an hour. It is impracticable to pass such a quantity of properly warmed air through a passenger car, & it was

not attempted. The calculations were made on the basis of 90,000 cu. ft. of air a car per hour, but this amount could not be properly warmed. After careful study & many experiments for the purpose of determining the correct number, size & location of the intakes, the openings for admitting the air to the heating system, & the ventilators in the deck, in order to secure the proper balance between their respective capacities to take in air, to warm it, & to remove it positive analyses show that good results are being obtained & that a car with the present system receives & rejects about 60,000 cu. ft. of air an hour. The system operates very satisfactorily when the car is standing as well as when it is in motion.

For nearly a year, the Pennsylvania R.R. has had under constant observation cars equipped with this system, & during the most extreme cold of last winter it was found that with all the ventilating apparatus open, it was quite possible to keep the car warm. During the warm weather when there was no heat on the cars, it was found that the cars fitted with this system were better ventilated than the cars that did not have it.—Railroad Gazette.



VENTILATION OF PASSENGER CARS ON THE PENNSYLVANIA R.R.

Amendments to the Railway Act.

The bill introduced in the House of Commons by the Minister of Railways to amend the general Railway Act is of such importance that its provisions are given in full as follows:

1. The Railway Act, chap. 29 of the statutes of 1888, is amended by inserting after sec. 6 the following sec.:

"6A. Street railways & tramways, while hereby expressly declared to be subject to such of the provisions of this Act as are referred to in sec. 4, shall not by reason only of the fact of crossing or connecting with one or other of the lines of railway mentioned in section 306 be taken or considered to be works for the general advantage of Canada, nor to be subject to any other of the provisions of this Act."

2. The said section 6A shall also apply to all electric railways (as distinguished from electric street railways) passing through or over the Queen Victoria Niagara Falls Park, or through or over the property of the prov-

ince of Ontario lying upon or along the Niagara River & known as the Chain Reserve.

2. The said Act is further amended by inserting after section 25 the following sections:

"25A. In case it appears to the Railway Committee expedient or necessary for the public convenience that a station should be located at any point on any railway subject to the legislative authority of the Parliament of Canada, & subsidized in money or in land under the authority of an Act of that Parliament, the Committee may by its order, confirmed by the Governor in Council, direct the company for the time being owning or operating such railway to erect, maintain & operate a station at such point, & may define the facilities or accommodation to be provided by the company in connection therewith.

"2. In the case of a railway not subject to the legislative authority of the Parliament of Canada, but subsidized in money or in land under the authority of an Act of that Parliament, the payment & acceptance of such subsidy shall be taken to be subject to the covenant or condition (whether expressed or not in any agreement relating to such subsidy) that the company for the time being owning or operating such railway shall, when thereto directed by order of the Railway Committee, confirmed by the Governor in Council, erect, maintain & operate a station, with such accommodation or facilities in connection therewith as are defined by the Committee, at such point or points on the railway as are designated in such order.

"25B. The Railway Committee may, from time to time, make rules & regulations, not inconsistent with this Act, for the operating of all or any of the railways now or hereafter subject to the legislative authority of the Parliament of Canada, & such rules & regulations shall supersede all rules & regulations made by the company operating any of such railways in so far as they differ therefrom.

"2. Such rules & regulations shall be subject to the approval of the Governor in Council, & shall be published in the "Canada Gazette" for _____ weeks.

"3. The Railway Committee may, from time to time, appoint competent persons to advise or assist the Committee in the preparation or revision of any of such rules or regulations, or any other matter coming before the Committee; & any person so appointed may be paid out of the unappropriated funds in the hands of the Receiver General."

3. The said Act is further amended by inserting after section 89 the following section:

"89A. Whenever a company, constructing or operating a line of railway which is situate wholly within the limits of one province, & with respect to which, or any part of which, the Government of such province has previously granted & paid a subsidy to such company or any other company, fails to comply with the requirements of its charter as regards the commencement or completion of its work within the times therein specified, or fails, for a longer period than ten days, to continue in an efficient manner the running, operating, or working of its railway, or any part thereof, the Lieutenant Governor in Council of such province, upon the report of the Railway Committee of the Executive Council thereof, may, at any time (even though the company is incorporated by the Parliament of Canada, or the railway is otherwise within the legislative authority of such Parliament), authorize the Commissioner of Public Works of such province, or other proper officer therein, to cause the railway, the road bed, & all the rolling stock & equipment thereof, to be sequestered or sold.

"2. All proceedings to be had after the granting of authority for sequestration or

sale, as provided by this section, whether concerning or incidental to the appointment of the sequestrator, the duties, rights, or powers of the sequestrator, the operation or sale of the railway, the distribution or application of the proceeds of such sale, or otherwise, shall be in accordance, as nearly as may be, with the procedure in similar matters in force in such province with respect to the sequestration or sale of railways within the legislative authority of the legislature of such province.

"3. This section shall have force & effect only with respect to such companies as are designated from time to time by proclamation of the Governor General; & it shall cease to have effect with respect to any such company on & after a day to be mentioned by proclamation of the Governor General."

In regard to the last amendment proposed by the bill, the Minister, in introducing it, said: "It appears that there are, or is, at all events, a railway company which has been in the receipt of aid from one of the provinces, which has operated a part of its line, but which does not choose to operate the remainder of its line, & the non-operation of which is a great detriment to that section of the community. The object is to enable some tribunal to deal with such a condition of things, & to insist, by the exercise of the pressure which an authority of this kind will confer on the tribunal, upon its being operated. It operates a part of its line profitably already."

Snow on the White Pass & Yukon.

The fall of snow in Alaska & Yukon during the past winter has been unusually deep & the operation of the White Pass & Yukon Ry. has been attended with greater difficulties than was the case during the winter previous. The exact snowfall during the entire winter we have not been able to ascertain, but during Dec., 1899, the snowfall at Glacier, on the line of the road, was 90½ ins.; the fall at the summit of White Pass was 55 ins.; & at Log Cabin, between the summit & Lake Bennett, it was 74½ ins. The snowfall during Jan. was heavy, although not quite as much as during Dec. During Feb. & up to Mar. 10 there were snow storms at occasional intervals, with more or less obstruction to the passage of trains. In anticipation of trouble from deep snow a narrow gauge snow-plow of the ordinary rotary type, specially constructed for the road, had been provided in season, & owing to the drifting of the snow, which has been the

principal source of trouble, the services of this machine have been indispensable to train operation. Except during times of temporary blockade two passenger trains have been run each way, daily, all winter, besides freight trains, the necessity for keeping the traffic moving being more urgent than otherwise for the reason that construction work on the extension of the road beyond Lake Bennett has been carried on all winter with a force of about 500 men. The greatest difficulties were encountered during a few days ending with Mar. 10, when, in a determined effort to raise the blockade, the rotary was kept continuously at work for 105 hours. The experience with the rotary plow under the conditions which have prevailed on this road, has shown some of the weak points in rotary plows as ordinarily constructed for narrow gauge lines, the result of which is that specifications have been drawn, & work is now proceeding on the construction of a new plow along improved lines, for service next winter.—Railway & Engineering Review.

Nova Scotia Legislation.

Among the acts passed at the recent session of the N. S. Legislature were the following:—

To encourage manufacturing & ship building.

Relating to the Stewiacke Valley & Lansdowne Ry. Co.

Relating to the re-appraisal of lands in the Municipality of Barrington required for track & station purposes of the Halifax & Yarmouth Ry.

To amend the act to incorporate the Canso & Louisburg Ry. Co.

To confirm the contract between the Government & the Inverness & Richmond Ry. Co.

To amend the act to incorporate the Liverpool & Milton Tramway Co., hereafter to be called the Liverpool & Milton Ry. Co.

To incorporate the Nova Scotia Coal, Iron, Copper & Ry. Co.

To amend the act incorporating the Valley Telephone Co.

To amend the act incorporating the Barrington & Cape Island Steam Ferry Co.

To amend the act respecting the N. S. Southern Ry. Co.

To incorporate the Cape Breton Electric Tramway Co.

Relating to the Inverness & Richmond Ry. Co., & to the act incorporating the Co. & the acts in amendment thereof.

To incorporate the Weymouth Terminal Ry. Co.

To amend the act incorporating the Cape Breton Ry. Extension Co.

To amend the act incorporating the Liverpool Marine Co.

To amend the act incorporating the Sydney Ferry Co.

Snow Hedges for Semi Arid Plains.

A Reinisch, Lawrence, Kan., writes: *Elaeagnus angustifolia*, or Russian olive, deserves to be placed first in the list of trees for snow hedges. It was brought to this country by the Russian Mennonites, who settled in Kansas & Nebraska since 1837, & has proven to be perfectly hardy in its new home, adapts itself to nearly all situations & soils, & transplants easily. The wood is hard & heavy; bark shining brown; leaves willow shape, dark green, glossy, silvery white underneath; flowers small, deep yellow, very fragrant & appear abundantly in May & June; fruit a small nut with a whitish downy covering, ripening in October. It is one of the prettiest lawn trees on account of its contrast with trees of heavier foliage. Its value as a snow hedge consists in its adaptability to the most varying conditions of climate, remaining green when other trees become parched with drouth & hot winds, & coming out of the severest winters unhurt. It naturally grows bush-like, & quickly makes a dense hedge, &, by trimming, a fine ornamental hedge. Its value as a construction timber has not been fully tested, as it takes some time to prove its durability in the ground as a tie or post.—Railroad Gazette.

C.P.R. Reports Wanted.

Wanted copies of the annual reports for 1881, 1882, 1883, 1884 & 1886 in pamphlet form. Any one having copies is requested to communicate with The Manager, RAILWAY & SHIPPING WORLD, Toronto.

C.P.R. Prizes for Live Stock.—The C.P.R. Co. has donated 15 cash prizes, to be awarded at the Winnipeg Twentieth Century Industrial Exhibition next July, for thoroughbred cattle, bred & raised in Manitoba or the N.W.T. This is in line with the Co.'s policy in encouraging the live stock industry of the Canadian West by the importation of thoroughbred sires recently.

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CURRENT TOPICS.

Worthless Express Orders.

If the press despatch stating that a Dawson newspaper proprietor, who also carried on an express business & operated a money order department, has left the Yukon, & that payment of the orders cannot be obtained, is true, the matter should occupy the very serious consideration of the Government & such legislation should be enacted as will prevent the repetition of such frauds. It might be well to provide that none but chartered companies may engage in the business of issuing express money orders.

Amending the Railway Act.

The bill introduced in the House of Commons by the Minister of Railways, the full text of which is given on page 105, should be closely watched by the railway companies. On the motion for the first reading, Sir Chas. Tupper suggested its submission to the Railway Committee of the House, but Mr. Blair would not give any promise that this would be done. It seems only reasonable that a bill of such importance should be considered by that Committee, & that the railway companies should have every opportunity of being heard in regard to it. Without touching on other clauses of the bill, we would specially draw attention to the one which proposes to empower the Railway Committee of the Privy Council to make rules for the operating of the railways, which shall supersede the rules of the railway companies where they differ therefrom. We see no reason whatever for such an innovation. It is of the first importance to the railway companies to operate under such rules as will secure the maximum of safety. No one is so vitally interested in this as the companies themselves. Following the plan adopted in the United States, the principal Canadian railways are already moving in the direction of uniformity. The St. Lawrence & Adirondack & the Northern Pacific companies have been using the standard code of the American Railway Association for some time past, the Grand Trunk & the Canada Atlantic railways have recently adopted it, & the Canadian Pacific is preparing to do so at an early date. And there is every reason to believe that other lines, seeing the advantages of the code referred to, will fall in line, & that within a reasonable time nearly the whole of the railways of the Dominion will be operated under it, which means that they will be using a system evolved by the concentrated efforts of the best operating men on the American continent. The Railway Committee of the Privy Council already has the power of approving or disapproving of the operating rules of the various railways. Anything further would be unnecessary & dangerous. Last year Mr. Blair secured an appropriation for a commission to frame railway operating rules, & he is evidently still going on the same tack, as his bill provides that the Railway Committee of the Privy Council may appoint persons to advise it in the preparation of such rules. No commission that the Committee can appoint will be in any respect as competent as the Train Rules Committee of the American Railway Association. Unless Mr. Blair is prepared to adopt the standard code & make it obligatory on all railways, the increased power which he asks for the Railway Committee of the Privy Council should be refused.

Nationalization of Telegraph Lines.

The preamble of a bill introduced by Mr. Casey in the House of Commons to provide for the establishment of a government system of telegraphs, asserts that the present telegraph rates charged in Canada are unduly high & that as the telegraph lines are owned by private corporations the same rates, etc., are not

extended to the public generally. In speaking on his motion for the first reading of the bill Mr. Casey did not state any facts to justify the assertion that the present rates are unduly high. The local rate of 25c for 10 words, which is in force in every province, & between Ontario & Quebec points east of Sudbury, is a reasonable one when the volume of business it is possible to secure is considered & the night rate of 25c for 25 words is a very advantageous one. The higher rates for longer distances are not excessive when the cost of maintenance is considered. In regard to the second allegation that there is discrimination in rates, Mr. Casey admitted that this was not the case with messages for the general public, & the only fact he could cite was that large newspapers, which take a tremendous amount of press despatches, get a lower rate than small papers which take but few despatches. We fail to see that there is anything unfair in this, on the contrary the wholesale user should have an advantage over the retail one.

Mr. Casey's proposal is that the rates for messages from one part of Canada to another shall not exceed 10c for 10 words & that press messages shall be carried for 10c per 100 words. These rates would apply even from Cape Breton to Dawson. We have no hesitation in saying that a system of government lines could not be made self-supporting at any such rates, & we do not think the great majority of the population, who do not use the wires at all, should be taxed for the benefit of those who do.

What has been accomplished in Great Britain does not apply here. There the civil service is non-partisan, here where every postmaster is appointed for political services the case is very different & there would be a decided objection to allowing telegrams to pass through the hands of such officials. Now the services of the different commercial telegraph companies are manned by the best people that can be got for the work, and as a consequence satisfactory service is performed. With government management it would be entirely different. An example of this is to be seen in the management of the government railways which, no matter what party is in power, are exploited for party purposes & in their services are necessarily inferior to lines under private management, which depend for their success largely on the excellence of their accommodations, services, etc.

Prince Edward Island Telegraph Service.

In referring a short time since to the complaints about this service we pointed out that there are two sides to the question, that the Anglo-American Telegraph Co. is not entirely to blame for the high rates on messages to points outside the Island, owing to the fact that these have to be handed over to other Companies, necessitating the charging of an extra toll, & that the telegraphic business of the Island is small, owing to its population being almost entirely an agricultural one. But there is no doubt that the service is inadequate and that an improvement is necessary. During a recent discussion in the House of Commons several of the Island members complained very forcibly about the service, being supported by the Minister of Marine, whose home is in Charlottetown. The Anglo-American Co. has its head office for the Island in that city, yet it is closed daily at 8 p.m. and not opened until between 8 & 9 a.m., so that no messages can be transmitted during the night. As Sir Louis Davies pointed out, during the South African war the morning paper published in Charlottetown has not been able to secure any despatches arriving later than 8 p.m., & in consequence, most of the trains leaving Charlottetown in the morning, the people outside that city always get their news 24 hours late. There is no doubt such a position of affairs is intolerable, & if the Anglo-American management values its

P. E. Island business at all we would strongly advise it to provide a more up-to-date service by keeping its offices in Charlottetown, & possibly Summerside & Georgetown, open at least until midnight, & to endeavor to make arrangements with the lines with which it connects in New Brunswick so that through rates may be somewhat reduced. Unless the management does this another service will undoubtedly have to be provided.

The impression has prevailed that the Anglo-American Co. has the sole right of landing telegraph cables on P. E. Island, but the Minister of Marine contends that this is not the case. He says that the Co., which was established in 1853, had a partial monopoly granted it, but that this merely prohibits the laying of a cable between Europe & P. E. Island, or between any island off the coast of the American continent & P. E. Island, say from Cape Breton or from Newfoundland, & that it does not prevent the laying of a cable between P. E. Island & the American continent, for instance to Nova Scotia or New Brunswick. If this interpretation of the position is correct there is nothing to prevent competition, save the question of the expense of laying another cable, & whether there is sufficient business to justify it as a commercial enterprise, which we much doubt. But this might be got over by the adoption of wireless telegraphy between Cape Tormentine, N.B., & Cape Traverse, P.E.I., where Northumberland Strait is only about 9 miles wide. The Anglo-American directors, who are in England, will do well to realize the situation before it is too late for them to save their P. E. I. business. The Co. gets a subsidy of \$2,000 a year from the Dominion towards the maintenance of the connecting cable, & the Minister of Marine has clearly intimated that unless the service is improved this will be withdrawn & that steps will be taken to secure another line, possibly one to be built by the Dominion.

Lubricating Oils for the Intercolonial.

Senator Fergusson, of Prince Edward Island, has again brought this question up in the Senate, by moving for papers, &c., in connection with the contract made between the Minister of Railways & the Galena Oil Co. The Senator charges that a representative of the Co. assisted the Minister in an election contest, that the contract was given in return for such assistance, & that the cost of lubricating oils under the present contract exceeds the previous cost. With the political phase of the question we have nothing to do, the party papers can thresh that out, but in the absence of unquestionable evidence in support of Mr. Fergusson's allegation, we have no hesitation in saying that we do not believe it. There remains the question of cost. We have gone thoroughly into this, & find that the Galena Co. offered to supply the Intercolonial with the best quality of lubricating oil, at a cost of 10% less per 1,000 miles than the cost for the year preceding that in which the contract was made, & also offered to allow any additional saving that might be effected by the economical use of oil. If the cost is reduced below the amount named in the guarantee, the Galena Co. does not receive more than the prices named in the contract for its oils, but the I.C.R. gets the full benefit of the reduction, whatever it may be. The Galena Co. further agreed to furnish experts free of charge to the railway to co-operate with the mechanical department in an effort to reduce the cost of lubrication to the lowest possible point consistent with good service. The railway's management is authorized to withhold payment of a sufficient amount of money to make good at all times the Galena Co.'s guarantee. The system of accounting is similar to that adopted on other lines supplied by the Galena Co. The mechanical & supply departments make up statements showing locomotive & car mileage,

numbers of gallons of oils consumed, & average cost per 1,000 miles, which are examined by the auditors of the railway & the Galena Co. If it is found that the cost has exceeded that guaranteed, the Galena Co. either pays the excess to the railways by cheque, or receipts vouchers for oils furnished to balance the amount of the excess, as the railway management may prefer. This form of contract, guarantee & settlement is the same as the Galena Co. has with the managements of 95% of the total railway mileage of Canada, the United States & Mexico, which would seem to be a sufficient justification of the action of the Minister of Railways in making the contract. The Canadian Pacific management, on the expiration of a three years' contract with the Galena Co., recently entered into another contract for five years; the Grand Trunk, the Canada Atlantic & other lines in the Dominion, have similar contracts, & enquiries we have made of the managements enable us to state that they are in every way satisfactory. Of course the general public never hear of these contracts when entered into with roads under private ownership, but directly a contract is made with a government line it is taken up for political purposes. We may add that the Galena Co. states that during the first year its contract on the I.C.R. saved the Government over 13% of the previous cost per 1,000 miles, instead of the 10% guaranteed, that it is never possible to do as well during the first few months of a contract as later, when those using the oils have become accustomed to their use, & that it is believed the future will show a still greater saving.

Repudiation in British Columbia,

The remarks made in our last issue as to the effect of Jos. Martin's participation in public affairs in B.C. are fully borne out by a special correspondent of the Toronto Globe, who, writing from Victoria, says that the effect may be best understood by comparing the state of affairs when he entered into active political life with present conditions. At the former time the country generally was prosperous & the outlook very hopeful. After showing that legislation pushed through by Martin, especially the alien law relating to the Atlin district & the eight hour law relating to mining, has had a disastrous effect on the mining industry, the correspondent shows the effect on investments. He says:—"At the beginning of last year the mines in the Kootenay district were becoming a favorite field for

the investor of British capital, but immediately the labor troubles began all that capital was diverted & it was almost impossible to obtain any investment of British capital in British Columbia mines. The fact that such an act could be passed & a Government found ready to carry it created so much alarm that mining interests became also paralyzed. A general policy of repudiation was also inaugurated with reference to several bonuses which had been passed by the Legislature & on the faith of which considerable capital had been invested. There was a railway, known as the Ashcroft & Cariboo, which had been incorporated with a considerable land grant. The promoters of this road, after much effort, had made arrangements for obtaining the necessary capital. For this purpose they had invested a good deal of money & spent a good deal of time & labor. The wording of the act provided that upon the completion of the railway the Government 'may' grant bonuses. It was generally understood that under the circumstances the word 'may' was equivalent to 'shall.' Mr. Martin took the opposite view, & although he was acquainted with the circumstances, repealed the act granting the subsidy. The result was that the promoters lost the benefit of all the money they had expended, & great alarm was caused among those London capitalists who had been prepared to invest in provincial enterprises.

"The Turner Government, in the last session before it resigned, brought in a subsidy act providing for the building of a railway from the coast to Penticton & Midway, in the Boundary country. This undertaking was divided into two sections. In accordance with the provisions of the act, two separate contracts had been entered into by the Government for construction. The subsidy act in each case provided that in every contract a provision should be inserted that the work should be done to the satisfaction of the Lieutenant-Governor-in-Council, & should be commenced on a certain day. With reference to one of the sections it was agreed between Mr. Turner & Mr. Eberts, the Attorney-General, representing the Government, & the contractors, that certain specified work should be performed during 1898 & 1899, and that that work, when done, should be deemed to be work done to the satisfaction of the Lieutenant-Governor. On the faith of that understanding a contract was signed by the contractors, & they duly performed their part of the work. When Mr. Martin took office he declared that this work, although done under

the agreement referred to, was not work done to the satisfaction of the Lieutenant-Governor-in-Council, & cancelled the contract.

"On the other contract the time for the beginning of the work had not arrived, & this contract was cancelled, although no default had been made. In furtherance of this executive act Martin brought in a bill repealing the subsidies to this road. As a result of this action a petition of right, on the part of the contractor, has been laid & a suit is now pending with the Government, in which the contractors claim large damages for repudiation of contract.

"These things have had a very unfortunate effect on the country. Business has been demoralized, capital has been turned away. It would be scarcely possible to believe that it was in the power of any one man to accomplish so much evil as has been done in one year."

This plain statement of facts, from a paper on the same side of politics as Martin, fully justifies all we have said. Until British Columbia repudiates him & show unmistakably that they will not endorse him or his methods, no one would be justified in investing in any enterprise there which can be in any way affected by provincial legislation. This may be hard on the province, but the remedy is in the hands of the people there.

Legislation in Quebec.

Among the acts passed at the session of the Quebec Legislature, which closed Mar. 23, are the following:—

Respecting a grant to the Quebec Bridge Co. & subsidies to certain railway companies.

Respecting the construction of telephone lines.

To further amend the charter of the Quebec Central Ry. Co.

To confirm an agreement between the C.P. R. Co. & the Hull Electric Co.

To incorporate the St. Hyacinthe Electric Ry. Co.

To incorporate the Great Northern Elevator Co.

To amend the charter of the Napierville Jct. Ry. Co.

To give additional powers to the People's Telephone Co.

To confirm certain by-laws of the town of Joliette, & a deed of agreement between the town & the Great Northern Ry. Co.

To amend acts relating to the Quebec & Lake St. John Ry. Co.

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Canadian Freight Association.

The 17th annual meeting was held at Montreal April 5.

The following were elected members:—Active—G. W. Hardisty, D.F.A., Northern Pacific Ry., Montreal; F. G. J. Comeau, G. F.A., Dominion Atlantic Ry., Halifax (vice W. Fraser); H. E. Fowler, G.F.A., Central Ry. of N.B., Hampton, N.B. (vice E.G. Evans); L. B. Howland, Irondale, Bancroft & Ottawa Ry., Irondale; W. B. Rosevear, Algoma Central Ry., Sault Ste. Marie. Honorary—R. T. Haskins, G.T.M., Metropolitan S.S. Co., Pier 11, North River, N.Y.; J. Hickson, West Shore R.R., Toronto.

The following copy of a resolution of several Boards of trade was read:—"That this Board recognizes the necessity for, & recommends to all shippers, that package freight should be addressed in full instead of, as is frequently the case, by numbers or initials, to assure its prompt & safe carriage to its intended destination by the transportation company to whom entrusted." It was decided that all agents be instructed by circular to have this resolution carried out on all practical occasions.

The question of admitting representatives of electric railways handling freight as members of the Association, in order that car service rules might be put in force on said roads, was left over for future action.

Article 4 of the constitution was amended by adding the following:—"Any person directly interested in freight transportation may become an honorary member of this Association by a vote of two-thirds of the active members present at a regular meeting, on being proposed & seconded by active members."

The election of officers & standing committees for the ensuing year resulted as follows:—

President, W. B. Bulling; 1st Vice-President, W. Woollatt; 2nd Vice-President, M. T. Donovan; Secretary-Treasurer & Chairman of Committees, J. Earls.

CLASSIFICATION COMMITTEE.—E. Tiffin, S. P. Howard, F. J. Watson, J. Hardwell, W. P. Hinton, W. Woollatt, J. Hanna, F. Zimmerman, C. A. Jaques; J. Earls, Chairman.

INSPECTION COMMITTEE.—G. Collins, F. Conway, J. N. Sutherland, F. F. Backus, J. Hardwell, C. A. Jaques, W. B. Lanigan, C. E. Dewey; J. Earls, Chairman.

CAR SERVICE COMMITTEE.—J. B. Morford, J. F. Chapman, M. C. Sturtevant, G. S. Cantlie, W. P. Hinton, J. J. Mossman, E. Fisher, W. Woollatt; J. Earls, Manager.

EXECUTIVE COMMITTEE.—J. W. Loud, C. J. Smith, W. B. Bulling.

Claim on Superannuation Fund.—The following question was recently asked of the legal department of a Toronto paper:—"A railway employe who has heretofore contributed to the superannuation fund, is leaving the employment of the company. Can he claim what he paid into the superannuation fund?" The following answer was given:—"A railway employe who has paid into a superannuation fund has such rights with regard to that fund as are provided by the rules & regulations under which the fund is established & maintained. If the rules provide that a member shall be at liberty to withdraw money from the fund when he leaves the employment of the company, then he can withdraw his money. If he can show that he was unjustly discharged from the employment of the company, he may still have a claim upon the fund. But I cannot, without having the regulations under which the fund is established, & by which it is governed, say definitely what the rights of members are, who leave the employment of the company or are dismissed."

Grand Trunk Betterments, Etc.

The total charges for maintenance & renewals on the G.T. system east of the Detroit & St. Clair rivers, & on the Detroit & Michigan Air Line division, in Michigan, for the year ended Dec. 31, 1899, were \$3,001,109.81, or \$158,505.69 more than for 1898. This is more than accounted for by an expenditure of \$85,000 on the Co.'s new general offices, now in course of erection at Montreal; & by the additional cost, amounting to \$94,484.14, of repairs and renewals of buildings & fixtures. Apart from these two items, the charges for maintenance & renewals were \$20,978.45 less than in 1898. The replacement of the old bridges, which are too light for the present loads & rolling stock, by others sufficiently strong to meet all probable future requirements, has been carried on more slowly than was expected, by reason of the impossibility of obtaining the necessary steel for superstructure. All the bridges between Montreal & Island Pond, 147.83 miles, have been finished, & trains of maximum weight are now run over them. Between Island Pond & Portland, 149.42 miles, the renewal of the bridges is being pushed forward as rapidly as the short supply of material will admit of. The Victoria Jubilee bridge has been completed, including roadways, footpaths & approaches, & was opened for public service on Dec. 1 last. The total expenditure upon it during the year was \$391,521.44. Excepting across the bridges, which are unfinished for want of steel, a 2nd main track has been laid between Ste. Anne's & Vaudreuil, 3.70 miles; & also from Sidney to Murray Hill, 7.75 miles. Both the bridging & earthwork on these two sections were exceptionally heavy. The gradients have been greatly improved, & the level crossing of the Central Ontario Ry. at Trenton has been superseded by a bridge. The only single track portion of the railway now remaining between Montreal & Toronto is from Port Hope to Port Union, 46.26 miles. The masonry of the Co.'s new general offices at Montreal has been built to about 8 feet above street level. The round houses at Sarnia & Port Huron, which were in course of erection at the end of 1898, have been finished. New stations have been built at Cardinal, Vaudreuil, Ste. Anne's, St. Lambert, St. Hyacinthe, Arthabasca, Somerset & Bright.

The Co. has recently placed some large orders for iron for bridge material.

General Manager Hays has informed the Montreal Harbor Commissioners that if they raise the wharf on the northwest side of Windmill Point basin some 7 ft. from its upper end where it connects with the G.T.R. tracks, in order to allow of the access of railway cars during all ordinary stages of the water in winter as well as in summer, the Co. will raise its tracks to connect with the tracks on the proposed higher level of the wharf.

Work in connection with the general office building in Montreal is again in full swing. Building operations had to be suspended in Dec. last owing to the impossibility of securing iron. The Co. now has in Montreal 1,000,000 lbs. of iron, which has been imported for the most part from Germany. The price of iron is still high, but the Co. is determined that its great structure, which it aims at making one of the finest architectural features of Montreal, shall be pushed on with the greatest rapidity. It is expected that the walls will be constructed & the building roofed by Oct. Work was stopped in Dec. just at the first tier of beams, but the stone cutting & the moulding operations have been in progress all the winter. The architect is now making full-sized drawings of all the mouldings for the five-storey structure. These are of the most chaste & beautiful character. The angles & curves are exceeding artistic—modelled from ancient Greece. Tasteful & artistic, the designs worked out on Canadian granite are most

charming. The design is called "angular curvilinear," a seeming contradiction in terms, but most aptly applied to the flowers & shields & berries which make up the pictorial representations of pure classic Greek. (Mar., pg. 71.)

The double tracking of the main line between Port Hope & Port Union, Ont., a distance of 45 miles, which will complete the double track between Montreal & Toronto, will probably be gone on with this year, though this as well as other contemplated improvements have yet to be approved by the Board. (Dec., '99, pg. 348.)

The question of erecting an improved station at Queen St. East, Toronto, has not yet, we are informed, been definitely decided upon.

The surveys for double tracking the line between Hamilton & Niagara Falls have been completed, & if present plans are carried out the work will be completed this year. It will be necessary to build a double track swing bridge across the new Welland Canal, as it is impossible to build a second track under the canal near Merriton. It is said that from Niagara Falls to Merriton there will be a great deal of rock cutting, besides the grading & bridge work to get over the new canal. Between St. Catharines & Beamsville there will be several big bridges to build. The Fifteen, the Sixteen & particularly the Twenty or Jordan creek, will require expensive bridges. The distance from Niagara Falls to Hamilton is only about 46 miles, but it is an expensive piece to build, when the mountain, the two canals, & the many creeks & ravines are taken into consideration. (Dec., '99, pg. 348.)

Station improvements are contemplated at Goderich, but it has not been decided whether to rebuild the present station, or to erect a new one.

The Mammoth coal chute, near the new roundhouse in freight yards west of Sarnia tunnel, which has only been completed some months, was burned to the ground April 11.

The Michigan Railroad Commissioner has approved a route for a line proposed to be built by the Chicago & G.T.R. through Genesee County & the city of Flint, with an overhead crossing of the Pere Marquette road in the city of Flint. This is merely a diversion of the present line, in order to secure better grades & alignment.

A Duluth-Montreal Scheme.—A Duluth despatch, dated Apl. 16, is given for what it may be worth. It says: "The announcement of the proposed incorporation of the Canada National Ry. & Transport Co. is the most interesting piece of news of the week. It is another proposed Duluth-Montreal route, & there are two Duluth men named in the list of incorporators, G. G. Barnum & W. Buchanan. F. Kraus, of Milwaukee, & J. G. Keith, of Chicago, are also among the incorporators. G. F. Piper, of Minneapolis, who is among the incorporators, is of the American Linseed Oil Co., & closely associated with a new corporation, which proposes to erect a system of grain elevators in Duluth. The advantages claimed for the proposed new route from Duluth to Montreal is that it will be the shortest possible route which affords a minimum of rail & a maximum of water haul. The route is, Duluth to Collingwood, Collingwood to Toronto by rail, & Toronto to Montreal via Lake Ontario & the St. Lawrence River. The authorized capital of the Co. will be \$5,000,000."

Sicamous Hotel.—The hotel at Sicamous, B.C., built by the C.P.R. Co., which was fully described & illustrated by us some time since, has been completed & furnished by the Co. with standard C.P.R. furnishings of the very best, complete in every detail, the cost of the equipment alone being upwards of \$10,000. The hotel has been leased to F. W. Padmore, formerly in the hotel business at Vernon, B.C.

C.P.R. Betterments, Construction, Etc.

New Lines.—During a recent visit to Ottawa, President Shaughnessy stated to J. M. Douglas, M.P., that the Co. will be glad to build any railways that it may consider necessary, without subsidies, provided the Government discontinues the practice of granting subsidies.

Atlantic Division.—Work has been commenced on the new station at McAdam Jct., N.B. The contractor is J. McVey, of St. Stephen, N.B.

Toronto Terminals.—A siding is being built on the Esplanade extending between York & Lake streets.

Ottawa Connecting Line, &c.—There is no truth in a report which has appeared widely in the daily press to the effect that the Co. is about to tunnel under Nepean Point, at Ottawa, to secure a western entrance to the Central station. (Mar., pg. 71.)

Ottawa-Arnprior Cut Off.—The rumor that the Co. is going to build a short line between Ottawa & Arnprior, which comes to the front every spring, is again on deck. An engineer went over the ground some time ago, & it is probable that the line, which would shorten the distance between the two points about 10.5 miles, will be built sooner or later, but it does not appear that any decision has yet been arrived at in regard to it.

Algoma Mining Branch.—It is probable that a short line will be built from the Algoma branch to the Victoria mines recently purchased by Dr. L. Mond.

Port Arthur.—The Co.'s passenger & freight dock at Port Arthur is being re-built in view of the large trade in prospect.

Fort William.—The building of a grain-cleaning elevator at Fort William is under

consideration, so as to obviate the delay caused by shipping grain to Port Arthur to be cleaned.

A number of cottages are about to be built at Fort William for the Co.'s employees.

Rat Portage.—The new station has been completed. (Feb., pg. 39.)

Western Branch Lines.—Particulars as to the construction of these, as authorized at the recent annual meeting of the Co., are given on page 97.

Bonnet Lake Branch.—The first 5 miles of grading has been completed, & the location has been finished to Bonnet Lake, 28.8 miles from Molson. The branch will be completed early in the summer. (Feb., pg. 39.)

Winnipeg Terminals, &c.—It is proposed to build a spur line from the old track at Fonseca st., Winnipeg, along the lane between Princess & Stanley streets as far as Alexander Ave., so as to accommodate the wholesale houses in that vicinity.

The plans for the Winnipeg station & hotel have been completed. The building will have a frontage of 180 ft. on Main St. & 280 ft. on Higgins Ave. Tenders have been invited, & it is expected that work will be started at an early date. The tenants occupying buildings on the site have been notified to vacate by May 1. (Feb., pg. 39.)

Manager Whyte recently had a conference with the works committee of the Winnipeg City Council in reference to the crossing of Main St. At present the Co. has 2 tracks running across that street, & desires to lay 4 additional ones in connection with the erection of the new station & hotel building. As such a number of tracks would, of course, be a great inconvenience to the vehicle & pedestrian traffic on the street, it is proposed to construct either a subway or an overhead

bridge. Mr. Whyte favors a subway, as an overhead bridge would require to be 21 ft. clear of the rails, while the depth of a subway need not be more than 12 ft. from the under side of the girder. The matter is still under consideration. (Feb., pg. 39.)

West Selkirk Branch.—The survey for an extension from Selkirk to the west shore of Lake Winnipeg, 24 miles, has been completed. The extension runs from Selkirk north-westerly through the river settlements to Clandeboyne, thence due north to the lake shore in township 17, except that a slight deviation is made in township 16 to go around the east side of Netley Lake. As far as can be ascertained, it has not been decided whether the extension will be built this year. The settlers in the Gimli district are urging the Provincial Government to assist in getting the branch further extended to that point, some 10 miles further than is now proposed. (Feb., pg. 39.)

Pipestone Branch Extension.—When work closed down for the winter grading had been completed for 23.24 miles west of Antler & track had been laid 14.07 miles west of Antler, the latter point being 18 miles west of Reston, the previous year's terminus. It is the intention to continue the branch this year to a point between Arcola & Clair, Assa., south of Moose Mountain, but the final location has not been determined. (Mar., pg. 71.)

Great Northwest Central.—Before deciding on any further extension of this line some surveys will be necessary to determine whether the country can be best served by a continuation of the G.N.W.C. or by other branch lines. (Jan., pg. 8.)

C. P. R. LANDS.

The Canadian Pacific Railway lands consist of the odd-numbered sections along the Main Line and Branches, and in Northern Alberta and the Lake Dauphin District. The Railway Lands are for sale at the various agencies of the company in Manitoba and the North-West Territories at the following prices:

Lands in the Province of Manitoba average \$3 to \$6 an acre.

Lands in Assiniboia, east of the 3rd meridian, average \$3 to \$4 an acre.

Lands west of the 3rd meridian, including the Calgary District, generally \$3 per acre.

Lands in Northern Alberta and the Lake Dauphin District, \$3 per acre.

TERMS OF PAYMENT.

The aggregate amount of purchase money and interest is divided into ten instalments, as shown in the table below; the first to be paid at the time of purchase, the second two years from the date of purchase, the third in three years, and so on.

Interest on the outstanding purchase money is payable in one year, except in case of an actual settler who breaks up at least one-sixteenth of the land within that time. No rebate of interest is allowed on hay or grazing lands.

The following table shows the amount of the annual instalments on a quarter section of 160 acres at different prices under the new conditions:

160 acres at \$3.00 per acre, 1st instalment \$71.90, and nine equal instalments of \$60.
160 acres at \$3.50 per acre, 1st instalment \$83.90, and nine equal instalments of \$70.
160 acres at \$4.00 per acre, 1st instalment \$95.85, and nine equal instalments of \$80.
160 acres at \$4.50 per acre, 1st instalment \$107.85, and nine equal instalments of \$90.
160 acres at \$5.00 per acre, 1st instalment \$119.85, and nine equal instalments of \$100.
160 acres at \$5.50 per acre, 1st instalment \$131.80, and nine equal instalments of \$110.
160 acres at \$6.00 per acre, 1st instalment \$143.80, and nine equal instalments of \$120.

DISCOUNT FOR CASH. If land is paid for in full at time of purchase, a reduction from price will be allowed equal to ten per cent. of the amount paid in excess of the usual cash instalment.

Purchasers paying any instalment, or more, one full year before the date of maturity, will be allowed a discount on the amount of the instalment or instalments so paid at the rate of six per cent. per annum.

Interest at six per cent. will be charged on overdue instalments.

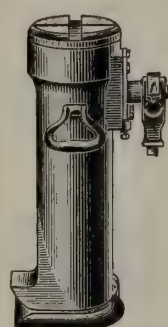
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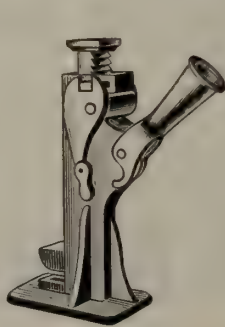
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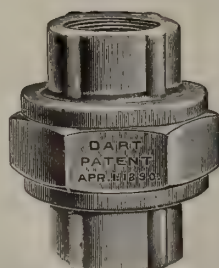
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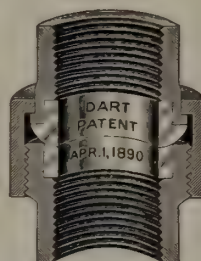
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Crow's Nest Pass Ry.—When at Nelson recently Manager Whyte made the following announcement as to the improvements to be made there. A large station & office building will be erected at the foot of Baker St. where it intersects Slocan St. The plans for the depot have not been finally decided upon. Superintendent Troup & Engineer Gutelius, as well as the train master & despatchers, will have offices in this building, & the telegraph, ticket & district freight agent's offices will be in an uptown block. All the other buildings will be north & west of the station, the latter being on the south side of the main line & the other buildings on the north. The public will, therefore, cross no tracks in visiting the station or offices. The freight shed will be as large as the Co. deems will be required for years to come & will be over twice as large as the present one. It will be located on the high ground across the flat from the station site. The round house will be nearer the lake & in it will be included a machine shop, which will be used for car repairing until such time as the traffic demands a building for this work alone. Coal pockets will also be erected. The side-tracks will cover the whole flat. They will be laid above the level of the flat in order to avoid trouble from high water. (Jan., pg. 7.)

Columbia & Western Ry.—The C.P.R. annual report for 1899 shows that during the year there was expended on the construction of the extension of this leased line from West Robson to Midway \$2,320,470.16.

On the extension from West Robson to Midway, stations have been built at Cascade, Grand Forks, Eholt & Greenwood, & are yet to be erected at Midway, Phoenix & Hartford Jct. (Mar., pg. 71.)

Pacific Division.—Large gangs are at work covering the line from Vancouver to Field, ballasting & otherwise improving the whole road in readiness for the Imperial Limited service which is expected to be reinaugurated this spring. (Feb., pg. 39.)

Shuswap Lakes.—It is said the management has decided to put some house-boats on these lakes for the accommodation of tourists.

The Vancouver & Lulu Island Ry. is to run directly south from Vancouver to the north arm of the Fraser River, a distance of 5½ miles. The work will be very light, the grades not exceeding 2½% & the curves not exceeding 5°. On Apr. 4 we were informed that the work of clearing had been let & that grading contracts were about being entered into. The ultimate destination of the railway will no doubt be Steveston, but it is only intended to build as far as the north arm of the Fraser this summer, & no decision has been come to as to the extension beyond that point. The road will be run by electricity at the outset & probably permanently. (Feb., pg. 40.)

Mineral Range.—Maps have been approved by the Railroad Commissioner of Michigan showing a proposed extension of this line in Ontonagon County, with a crossing of the line of the Copper Range R.R., near Mass City.

Quality of Rails.—At a recent meeting of the American Railway Engineering & Maintenance of Way Association in Chicago, Chief Engineer Peterson, of the Canadian Pacific, asked Capt. Hunt who is the authority on steel rails, why it is that the railways do not get as good rails as they did in the olden days. There are 56 lbs. rails at present in use on the C.P.R., laid in 1875, & which have been subjected to the heaviest use, which are better than the 80 lbs. rails the road can buy nowadays. Capt. Hunt replied that the modern rail does not give as good results as obtained from the original steel rail, or that made in the earlier days of the Bessemer manufacture, because the same care is not expended in its construction.

RAILWAY DEVELOPMENT.

Projected Lines, Surveys, Construction, Betterments, Etc.

Algoma Central Ry.—Contractor Conmee has commenced work on the main line at Sault Ste. Marie, his contract requiring the completion of 12 miles by June 1. This will carry the line to the township of Awares. It is expected that the main line will be completed for 40 miles to the township of Gaudette by Nov. 1, & that the first 50 miles of the main line will be completed by Dec. 31. The point of connection between the main line & the Michipicoton branch cannot be given at present, as the region is entirely unsurveyed. (Mar., pg. 72.)

In speaking before the Toronto Board of Trade recently on "An instance of industrial evolution in northern Ontario," President Clergue, of the Algoma Central, said: "We have found there, as everybody finds, that you cannot get on without a railway. We found that the watershed of Hudson's Bay came down very close to the streams tributary to Lake Superior, which were, therefore, abrupt & rapid, & the region was so rocky as to be very unproductive of timber, & it is a fact that the pulp factory to-day is drawing wood by rail from North Bay. So you can see how necessary it is for an industrial enterprise of this character to be in close touch with its raw resources. We find plenty of wood there, but we cannot get it down the rivers through this inaccessible region. We found that it was necessary to have railway admittance into the region which furnishes our raw resources, so we conceived the idea of building a railway into that region, & began an investigation of the possible routes into the various reserves. We found it practicable, & we have now applied to the Government for certain concessions, under which we expect to build a railway during the next two years, about 300 miles into that country. I wish I had now before me a large map, illustrating what that region is like, for I have an opportunity now of impressing on the Board of Trade of Toronto the great importance to them, and to the citizens of the southern part of Ontario generally, of a railway system centering towards southern Ontario. With all due respect for the C.P.R., which I admire as the most important enterprise in Canada—so far as Ontario is concerned, it had better never have been built. The timber & minerals can never pay the long rail haul to Montreal. But there must be developments by systems running north & south. Yes, even so far north as Hudson's Bay there are the most valuable resources. And, what Toronto, & what the whole of Ontario should insist upon & urge night & day upon the Government, is not to allow a railway to be built in Ontario that does not come down to the lake system. * * * We found iron mines 12 miles from Lake Superior. The only trouble was to build a railway. We began last summer to build it, & we have now spent \$500,000 upon it. The road is laid with 85 lbs. rails.

The Ontario Legislature has given the Co. a land grant of 7,400 acres a mile for 200 miles of railway from Sault Ste. Marie to Missanabie & Michipicoton. The Co. binds itself to bring 1,000 settlers a year for 10 years into the district; to provide special railway rates for settlers; to build & operate a fleet of steel steamers on the upper lakes, beginning with 4 this year, for the purpose of carrying ore; to build large reduction works, a sulphide paper mill, & to double the capacity of its pulp mills. It has also to buy the pine on the lands conceded at current market rates.

Atlin Lake to Lake Arm.—It is reported that Capt. J. Irving, of Victoria, B.C., & others, will build a line of about 3 miles over

the portage between these points, so as to be ready for use in June.

Boundary Rapid Transit Co.—R. A. Dickson & P. T. McCallum give notice of application under the B.C. Tramway Co. Incorporation Act, to incorporate a company under this name to build & operate a tramway & telephone & telegraph lines in connection therewith. Commencing without the distance of ½ mile from the International Boundary Line, at or near Cascade City, following the valley of the Kettle River to Grand Forks; following the valley of the North Fork of Kettle River to a point on the North Fork 50 miles from Grand Forks; & beginning at a point without the distance of ½ mile from the International Boundary, at or near Carson City; thence northerly & easterly to Grand Forks & from Grand Forks, or from some point on the line extending up the North Fork, by way of Phoenix & Greenwood, to a point without the distance of ½ mile from the International Boundary, at or near Midway.

Canada Atlantic.—It is not expected that work will be started on the Central station in Ottawa this year, as it is not likely that the Department of Militia will vacate the military stores building in time. (Feb., pg. 41.)

An item is again going the rounds of the daily papers stating that this Co. has decided to erect a second grain elevator at Depot Harbor, with a capacity of 1,500,000 bush. We contradicted this report in Feb., and are again officially informed that it has no foundation. The Co. has all the storage & transhipping facilities at present required at Depot Harbor.

The Ontario Legislature has voted a subsidy to the Central Counties Ry. Co., whose line is leased to the C.A.Ry., to extend its Rockland branch, which now runs from South Indian on the main line to Rockland, 21 miles, a further distance of about 7 miles to Clarence Creek, the subsidy being at the rate of \$1,200 a mile.

Canadian Northern.—The settlers of the Lake Frances district are urging the Manitoba Government to arrange for the 40 miles of line built by the Winnipeg & Hudson's Bay Ry. Co. some years ago to be put in running order & to connect the same with an extension of the Canadian Northern eastward from Gladstone which would give that line an entrance to Winnipeg. (Mar., pg. 72.)

Arrangements are being made to recommence construction at last year's terminus, 220 miles from Gladstone Jct., & it is expected that the line will be carried as far as the Great Saskatchewan this year. (Feb., pg. 41.)

The station names on this line are to be put up in enameled iron plates, supplied by the Acton Burrows Co., Toronto, instead of painted wooden signs.

Superintendent Hanna & R. J. Mackenzie recently waited on Premier Macdonald at Winnipeg to request that the aid alleged to have been promised by the late Manitoba Government to the Gilbert Plains branch should be given by the present Government. Mr. Macdonald promised that the matter would be brought up at the first full meeting of the executive council, but gave no assurance that the request would be favorably entertained.

Central Ontario.—The Ontario Legislature has granted this Company a subsidy of \$3,000 a mile for 40 miles of line to be built from Bancroft to which point the line is now being extended from Ormsby to the Canada Atlantic Ry. between Madawaska & Whitney. (Mar., pg. 72.)

Comox & Cape Scott.—When this bill came up before the Railway Committee of the House of Commons recently it was amended by reducing the stock from \$10,000,000 to \$6,000,000, & a clause giving power to bond the road by sections was dropped. Mr. McInnes, M.P., endeavored to have inserted a clause forbid-

ding the employment of Chinese in construction or operation of the road, but this was defeated both in the Committee & in the House. (Nov., pg. 333.)

Dalton Trail to Kluckwan.—Robertson & Robertson, solicitors, Victoria, give notice of application to the B.C. Legislature to incorporate a company to build & operate a railway from the northern boundary of the province at or near the point of intersection of the Dalton Trail; southerly, to or near the Indian village of Kluckwan, Cassiar district, or to that point of the boundary line between B.C. & the U.S. which is nearest to the shores of Lynn Canal.

Edmonton, Yukon & Pacific.—A press item states that the Mayor of Edmonton, Alta., recently received a letter saying that Mackenzie, Mann & Co. would immediately begin building 4 miles of this line, connecting Strathcona with Edmonton, preparatory to work on the 50 miles subsidized from Edmonton westward. We are unable to verify this & cannot ascertain that any immediate construction is intended. (Mar., pg. 72.)

The Fort Erie Ferry Railway Co. is applying to the Ontario Legislature to extend the time for the completion of its line.

Gaspe Short Line Ry.—A bill is before the Dominion Parliament to incorporate a line from Gaspe Basin, following the valley of the York River for about 30 miles, thence through the interior of the Gaspe Peninsula to the I.C. R. north of Causapsal, with branch lines to Paspebiac or to any point on the Baie des Chaleurs Ry., the applicants being Hon. S. Hanbury & H. Higgins, London, Eng.; L. K. Joncas, Quebec; C. E. A. Carpenter, Gaspe Basin; J. X. Lavoie, Percy. The bill was warmly discussed in the Commons Railway Committee. One clause gave the Co. power to acquire & operate the Baie des Chaleurs Ry. Dr. Sproule remarked that this looked like a job. Mr. Fitzpatrick retorted that the Baie des Chaleurs Ry. was the worst job in Canadian history, that the line had only been built to Paspebiac, that it had been closed since last Jan. as being unsafe, that the Co. had received from the Provincial & Dominion Governments \$1,000,000 in cash, that there was now a suit against it for \$160,000 by one of the contractors (Mr. Macfarlane), that there were about \$60,000 due to workmen on the line, & that the promissory notes of the Co. were being sold in Montreal at 20c. on the dollar. The object of this clause was simply to give the Gaspe Short Line Ry. Co. power to buy the road when it was sold by the sheriff. The clause passed. Mr. Tisdale wanted to know what would become of the Baie des Chaleurs bondholders when the line was sold. Mr.

Patrick told him that the line would be sold subject to the claims of the workmen & Mr. Macfarlane. Whatever the sheriff has left, when these claims are satisfied, will go to the bondholders.

Great Northern of Canada.—Contractor Ross says the line will be completed between Shawenegan, Que., & Hawkesbury by Aug. 1. The remaining bridges will be completed early in the summer. About 20 miles of the ballasting has been completed, leaving 65 miles of ballast & about 30 miles of track yet to be put down. Forty miles of the road between St. Jerome & Ste. Elizabeth have been operated by the contractors during the winter. (Mar., pg. 72.)

Great Northern (U.S.A.)—A resident of Killarney, Man., states that President J. J. Hill, writing to him recently, stated that his Co. did not care to consider any proposition looking to the extension of its lines into Manitoba.

When in Seattle, Wash., recently President Hill stated that improvements to be undertaken by this Co. will involve the expenditure of between \$2,000,000 & \$3,000,000 in the State of Washington during the coming summer. The tunnel through the Cascades will be finished sometime in Sept., boring being now in progress at the rate of 500 ft. a month. Several spur lines will be built to accommodate the rapidly increasing lumber business. Mr. Hill says 140 shingle mills are now in operation along the line of the Great Northern in Washington. The wooden bridges on the Coast lines are to be replaced with steel. Perhaps his most interesting statement is that relating to his preparations for Oriental trade. Three great steam freighters have been ordered & are to be completed in Nov., 1901. It will take 1,500 freight cars to fill one of these freighters, & for this purpose 12 miles of trackage will be needed at the terminal point. This will call for very extensive additions to the facilities which the railway now has at Smith's Cove, Seattle. While at Whatcom Mr. Hill spoke very encouragingly of the prospects of the Bellingham Bay towns, & gave more than colorable ground for the belief that he contemplates, as Oriental business expands, to utilize the excellent harbor there in connection with this commerce.

Halifax & Yarmouth.—M. Murphy, Nova Scotia Government Engineer, reports as follows on the Coast Ry. of Nova Scotia, the name of which has recently been changed to the H. & Y. Ry.:—"The construction of this railway has proceeded slowly for the last two years. In Jan., 1898, 30 miles was sufficiently advanced towards completion to warrant the payment of subsidy on that distance. To-day

it is not sufficiently advanced to warrant the payment of subsidy under the conditions of contract for the additional 20 miles over which the rails are laid. In the present unfinished condition of the 20 miles from Pubnico to Barrington Passage, I could not undertake to give an approximate estimate of the cost to complete that distance. A commendable feature in the construction of the Coast Ry. is the class & character of its structures. All are of a durable type, well proportioned & well adapted to their requirements. The bridge substructure is of granite, ashlar masonry, in regular courses; the superstructure is of steel, & of ample size & strength for heavy traffic. All culverts, where split granite could be obtained at a reasonable distance, are built of that material. If granite or good building stone for substantial & permanent structures could not be had within easy distance, concrete work was employed as a substitute. The workmanship is good throughout & fairly up to the requirements of specification. The rails are 56 lbs. to the yard, & are laid with ordinary fish-plates on sleepers or ties placed 2 ft. apart. In the first 4 miles proceeding easterly from East Pubnico station, there are yet some ties wanting to reach the standard of 2640 to the mile of track, not many, but still sufficient to warrant remark. The ballasting over the 2 last sections of 20 miles, 10 miles each, so far as it has proceeded, has been attended with unusual trouble & expense. The haul has been long & the material coarse, concretionary, expensive to excavate & to handle. Prospects for better ballast pits are said to present themselves along the extension of the next section of 10 miles easterly. If so, it might be advisable to run no more ballast easterly from the pits at Pubnico, but to ballast westerly from those that look better on the next section as soon as the track will be extended to reach them." (Feb., p. 41.)

Intercolonial.—A number of round-houses on the line will be erected this year. The present one at Stellarton being too small, another will be built, with a 70 ft. turn-table, & the round-houses at Truro, Campbellton, Riviere du Loup & Hadlow, will be enlarged to accommodate 65 ft. turn-tables, necessitated by the use of larger engines. It is also probable that larger round-houses may be built at St. John & Halifax. All of the round-houses will be equipped with ball-bearing turn-tables.

In view of the largely increased traffic to Cape Breton, the question of improved accommodation for crossing the Strait of Canso, is being considered, & it is probable that the present place of crossing from Port Mulgrave

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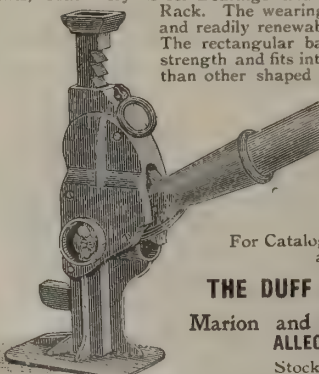
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to Point Tupper, will be abandoned for another site, where increased yard room & other accommodation can be secured. The present system of transferring passengers by steamer, & freight cars on a barge towed by a tug, is very unsatisfactory, & a change to a steam car ferry is most desirable.

The water service on the Cape Breton lines is being improved to accommodate the increased traffic.

Rest-houses for train men, provided with dining-room & sleeping quarters, are to be built this year at Hadlow, Riviere du Loup, St. Flavie, Campbellton, Newcastle, Moncton, Truro, Halifax & St. John, work having already commenced on some of them.

Tenders have been asked for improving & extending the station at Levis, Que.

Interprovincial Bridge, Ottawa & Hull.—On April 4, we were informed as follows:—"The centre portion of the spans between piers 4 & 5, & between 5 & 6, are in place, & the cantilever arm between piers 2 & 3 is being erected, but owing to the expected break up of the ice, very little more will be done before it goes out." The approach on the Ontario side is being pushed, & in a very short time the north approach on the Quebec side will be commenced & rushed to completion." (Feb., pg. 41.)

When the Ontario Legislature granted \$50,000 towards the erection of this bridge it was on condition that the Province of Quebec should also grant \$50,000. This condition was removed at the recent session, provided other conditions are fulfilled & that \$800,000 or more be expended on the work.

Inverness & Richmond.—When track laying was suspended at the beginning of winter, steel had been laid from Port Hastings for 30 miles. During the winter about 500 men have been at work grading. This force will be doubled by May 1, & it is intended to recommence track-laying in June. (Mar., pg. 73.)

M. Murphy, Nova Scotia Government Engineer, reports on this line as follows:—"The prospects arising from the success attending the development of the collieries, their incidental expansion & creative agencies on the south-east coast of the island of Cape Breton, lent influence & encouragement to similar organizations to open up & develop the no less productive coal-fields of the north-west coast. At Port Hood, Mabou, Broad Cove & Chimney Corner, & likely further north & south, following the north shore of Inverness County, coal seams known to be of great commercial value crop to the surface. So long as the collieries of the adjoining Cape Breton County were operated by different companies that supplied all the output then in demand, the Inverness properties received little attention, not because of the quality or the coal, or the cost of mining it, or its commercial value when mined, but simply because of it being more distant from the point of shipment than its more southern prototype. For, although the remarkable success attending the Dominion Coal Co.'s organization & growth gave inspiration & encouragement to the investment of capital in kindred enterprises, the long-felt want of railway facilities for transport still acted as a barrier to the introduction of similar enterprise in the investment of capital, & the opening up & development of the Broad Cove, & adjacent coal fields. But apart from the development of mineral products, other & no less important considerations favored the construction of the Inverness & Richmond Ry. Inverness is chiefly an agricultural county; every member of its community is practically interested, & rightly regarded the construction of the railway as an essential adjunct of material progress. Thrifty farming settlements succeed each other in continuity without an intervening break or ridge from Port Hawkesbury to Cheticamp, a distance of about 80 miles, with

spurs of rich intervals dispersed at Judique, Mabou, Strathlorne & Margaree. About midway is the county town, Port Hood, at present of little commercial importance, as the produce of the county finds more convenient market at the extreme ends or over the hills to the adjacent county. The railway has been recognized in all civilized communities as an essential element of progress. In a country like our own, so exclusively dependent upon the importations of many articles required in manufacturing industries, in works of construction, & in the sustentation of life itself, the functions to be performed by the railway are of the most important character. Apart from all else, the influence it will create by enhancement in value of local production, ready intercourse & concentration of trade in the county towns & throughout the county itself, is sufficient incentive to immediate action, more especially so when supplemented by the prospect of a continuous traffic of coal. Several ineffectual attempts had been made, extensive surveys had been conducted, & contracts agreed upon promising liberal subsidies for immediate construction, but, up to 1899, not a mile of the railway had been built. Meantime, stimulated by the boom proceeding in the Cape Breton county collieries, the Inverness coal properties assumed a new phase; the prospector, the promoter, & the speculator made their appearance in rapid succession, property changed hands, but the prospects of railway construction seemed as remote as ever. However, events since then have moved with greater rapidity. The door was now open; more reassuring prospects entered through it, & greater concessions were offered. The enterprising firm of Mackenzie, Mann & Co. was early in the field; the Inverness Coal & Ry. Co. was reorganized; a new contract granting more than the usual subsidy, & providing not only for the construction of the railway, but for the development of the Broad Cove colliery as well, was entered into, infusing new life into the project under more favorable conditions.

"The contract provides for the construction & equipment of 60 miles of railway from a junction with the Intercolonial Ry. at Port Hawkesbury to Broad Cove, & to put into operation on or before June 15, 1901, open & bona fide work, a coal mine or coal mines at Broad Cove, & equip the same with approved plant & machinery sufficient for the production of 250,000 tons of coal per annum, time to be material & the essence of the contract, & in default of such commencement or vigorous prosecution, or of such completion as aforesaid, the Co. to forfeit all right or claim or demand to any & every part of the subsidy to be paid. The contract was executed May 23, 1899; location surveys were made, submitted & approved, & actual construction commenced in June following. The progress, so far, has been very satisfactory. Within the last 6 months, June to Dec., an average of 1,000 men have been daily employed. Construction plant of the most approved form has been imported and set to work, and about 30 miles of the excavation, bridge substructure & culverts within that distance have been completed. The rails have been laid from Port Hastings to Port Hood, & some ballast introduced to enable the working trains to run over the road-bed with safety. Owing to the great demand for bridge superstructure of steel, & the rush with which the works were being hurried, contracts for speedy delivery could not be effected, temporary trestles had to be constructed instead to carry the permanent way. The provisions, however, made to receive the metal by the construction of concrete abutments & pier substructure are alone sufficient to assure the Co.'s intention to erect steel bridges over them as soon as they can be supplied. The whistle of the locomotive already enlivens the precincts along the Strait of Canso & beyond Port Hastings

to Port Hood. At the same rate of progress it is not too much to expect the Inverness & Richmond Ry. to be completed this year. The ground is better prepared; the material is more ready to hand; the Government initiated the recent vigorous movement, & have a large ultimate pecuniary interest in its success.

"The strong, energetic & forcible manner in which the construction of this line, between Port Hastings & Port Hood, has been pushed forward during the summer & fall months of 1899, would warrant the assumption that the 60 miles from Port Hawkesbury to Broad Cove Mines would be completed in the ensuing summer & fall seasons of 1900. In my preceding remarks I have already referred to the expeditious & satisfactory way the construction has been proceeded with so far. Mr. Earle, the Co.'s Chief Engineer, has been revising & completing the final location of the line between Port Hood & Broad Cove; the result of which will be submitted for the approval of the Governor-in-Council in due course. An amended plan of location, showing some slight changes of alignment between Port Hastings & the junction with the I.C.R. near Port Hawkesbury, has been already submitted, but is awaiting consideration until the usual book of reference giving the respective quantities of land to be expropriated is also furnished, as provided by statute. Work in rock cuttings, in clearing of wooded lands, & such other works as can be conveniently proceeded with in winter, is being carried on & general provisions are being made by A. Sinclair, C.E., General Agent for Mackenzie, Mann & Co., to ensure an early start.

"Following is a table of alignment from Port Hastings to end of 30th mile:—

Tangents no.	Curves no.	Degrees of Curves.	Miles.
77	.....	.....	19.30
.....	6	1° to 2°	0.58
.....	11	2° " 3°	1.28
.....	14	3° " 4°	2.38
.....	14	4° " 5°	1.55
.....	8	5° " 6°	0.93
.....	20	6° " 6'30"	3.12
.....	5	7°	0.69
.....	1	9°	0.17
			30.00

GRADIENTS FROM PORT HASTINGS TO END OF 30TH MILE.

Denomination of Grade.	Ascending from Hastings.	Descending from Hastings.	Miles.
Under 10 ft. per mile.	.....	0.81	0.81
From 10 to 20 ft. per mile.	0.34	2.15	2.49
" 20 " 30 " " "	2.64	0.83	3.47
" 30 " 40 " " "	2.08	1.00	3.08
" 40 " 50 " " "	0.74	1.38	2.12
" 50 " 55 " " "	2.25	4.24	6.49
" 55 " 60 " " "	0.68	.....	0.68
" 60 " 70 " " "	1.69	.....	1.69
" 70 " 80 " " "	0.95	.....	0.25
Level miles	.....	.....	8.62
			30.00

Kettle River Valley Ry.—The bill to incorporate a company under this name to build a line in the Boundary district of B.C., was thrown out by the Railway Committee of the House of Commons April 6. (Nov., '99, pg. 333.)

Kingston & Pembroke.—In reference to the application of this Co. to the Dominion Parliament for power to extend its line from Renfrew, Ont., across the Ottawa River to Bryson, Que., & also northward to the eastern branch of the Ottawa River, we are informed that it is not expected any construction will be undertaken this year. (Feb., pg. 42.)

Kitimat Arm to Hazelton, &c.—In our Jan. issue, pg. 16, particulars were given of an application to the Dominion Parliament to incorporate a company to build & operate a railway from Kitimat Arm to Hazelton, etc. Bodwell & Duff, solicitors, Victoria, now give notice of application to the B. C. Legislature to

incorporate a company to build & operate a railway from Kitimat Inlet to Hazelton, & F. Higgins, solicitor, Victoria, gives notice of application to the B.C. Legislature to incorporate a company to build & operate a wagon road between the same points.

Kootenay Ry. & Navigation Co.—The new line between Kuskanook, B.C., & Bonners Ferry, Idaho, is being thoroughly ballasted. No definite information is obtainable as to when the operation of the line will be commenced. (Feb., pg. 41.)

Lake Bennett Ry.—F. Higgins, solicitor, Victoria, gives notice of application to the B.C. Legislature to incorporate a company under this name, to build & operate a railway from the Dyea River, on or near the provisional boundary between B.C. & Alaska, to Lake Bennett, thence to the 60th parallel of latitude.

Lake Erie & Detroit River.—Progress on the survey for the extension of this line from Ridgeway to St. Thomas has been somewhat delayed by unfavorable weather, but it is expected to be completed very soon. As at present laid out the line runs pretty close to the Michigan Central track, which it follows on the south side. A deputation from Elgin County recently waited on the Minister of Railways, asking that the line be built through the southern part of the county, instead of paralleling the M.C.R., & the Minister is reported to have promised to send a Government engineer to look the ground over. (Mar., pg. 73.)

The Manitoba & Northwestern recently bought a 55-ton steam shovel, which is to be used in filling up large trestles at the Assiniboine River crossing this year.

Manitoba & Southeastern.—The U.S. Congress has passed a bill empowering the Min-

nesota & Ontario Bridge Co. to build a railway bridge over the Rainy River, to connect the Minnesota & Manitoba Ry., a subsidiary of the Manitoba & Southeastern, with the Ontario & Rainy River Ry., which is being built from Port Arthur westward. The bill was passed as amended by the Committee on Commerce. (Feb., pg. 42.)

The U.S. House of Representatives has passed a bill granting the Minnesota & Manitoba Ry. right of way through the Red Lake Indian reservation in Minnesota. (Feb., pg. 41.)

The Acton Burrows Co.'s enameled iron plates are to be used for station names at all stations on the M. & S.E. Ry., instead of painted wooden signs.

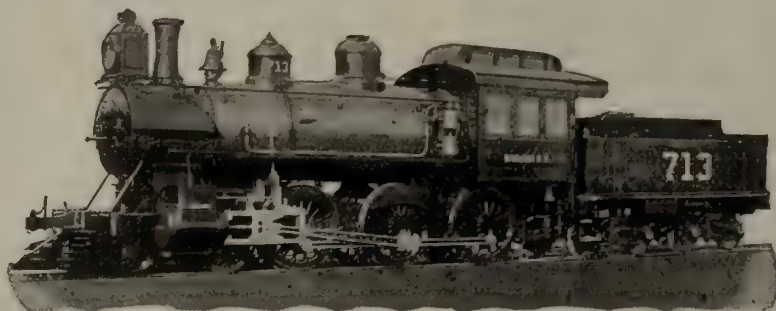
Michigan Central.—A recent press item states that the Co. will double-track its line from Dutton 25 miles west, which will bring the double track about to Ridgeway; from Essex 25 miles east; from Springfield 25 miles, & from Cayuga 25 miles west. An official informs us that it is not the intention to do this work this year.

The Chatham Board of Trade is taking steps to urge the Co. to build a line from Petrolia to Dresden.

Midland of Nova Scotia.—M. Murphy, Nova Scotia Government Engineer, reports as follows: "Works have been pushed forward during 1899 with the same degree of energy that characterized the progress of construction in the preceding year. From the start to the present advanced state of completion, operations have been conducted in a very satisfactory manner. There has been no stint or disposition to curtail expenditure at the cost of durability or permanency. The works have been necessarily heavy, owing to heavy & expensive bridge work adapted to the

movements of heavy trains & high rates of speed. The aims of the Co., evidently, have been the abridgment of time & space, easy & economical movement of traffic, & the establishment & control of through traffic between Windsor & Truro. It will be a 'main line' from the start, & must become an important factor in connection with the through railway system of the Province. From the progress made during the summer and fall seasons of 1899, we might infer that with the same rate of progression the M.R. could be opened for traffic in the ensuing summer months, the only drawback being the backward state of the Shubenacadie bridge. There is yet considerable ballasting to be done, but with the steam shovel working day & night, same as last season, that work might be speedily effected. There are three piers yet to be built to complete the substructure of the bridge, after which the metal superstructure has to be erected, all of which must delay the opening of the line for traffic operation.

"The M.R. is favorably located for heavy freight traffic operations. It begins & terminates at about the same level, just above the littoral of the Bay of Fundy. Its greatest elevation is on the summit of the water shed dividing the Kennetcook & Five Mile Rivers, & that is only 145 ft. above tide. Of the 57 miles in its extent, 22 miles will be operated on level rails; there is no heavy gradient anywhere on the line. The curvature is also very favorable for traffic. Beginning within the station ground of the Dominion Atlantic Ry. at Windsor, the route follows the St. Croix River, crossing it at 3¾ miles. It follows the Hibert River Valley from the 5th to the 8th mile. It follows the Kennetcook River from the 11th to the 34th mile, & from thence descends the Valley of the Five Mile River to its confluence



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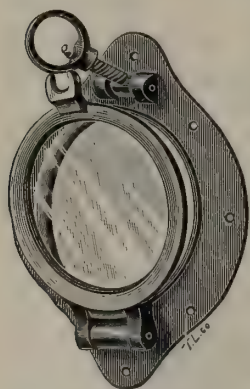
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with the Shubenacadie River at the 41st mile, thence along the foot hills bounding the river to near Black Rock; from here it runs through Clifton, following the Salmon River to Truro."

GRADIENTS FROM TRURO TO WINDSOR.

Denomination of Grade.	Ascending from Truro, Miles.	Descending from Truro, Miles.	Total Miles.
Under 10 ft. per mile	5.35	5.35
From 10 to 20 ft. per mile	2.18	4.49
" 20 " 30 " "	1.57	3.43
" 30 " 40 " "	1.12	1.59
" 40 " 50 " "	1.78	0.66
" 50 " 55 " "	6.98	6.35
" 55 " 60 " "	13.33
" 60 " 70 " "
Level miles	21.90
			57.40

ALIGNMENT FROM TRURO TO WINDSOR.

Tangents no.	Curves no.	Degree of Curvature.	Total Miles.
121	..	Under 1°	36.73
.....	11	r° to a°	2.33
.....	17	2° " 3°	3.06
.....	23	3° " 4°	3.64
.....	32	4° " 5°	5.03
.....	13	5° " 6°	2.08
.....	23	6° " 6'30"	4.27
.....	■	.....	0.26
			57.40

There are 108 cedar box culverts, 30 cedar-beam culverts, 23 structures of hard pine, 14 ft. openings; 13 pipe culverts, 12 to 18 ins. diam.; 8 structures of 2nd class masonry in cement, & the following larger structures:—St. Croix bridge.—3 concrete piers with stone coping. Two 130 ft. through, & one 34 ft. deck spans of steel superstructure; Little River bridge.—Two 1st & 2nd class masonry abutments in cement, with 30 ft. deck span of steel superstructure; Lacy's Brook bridge.—Two 1st & 2nd class masonry abutments in cement, with 25 ft. deck span of steel superstructure; 1st Crossing, Kennetcook River bridge.—1 pier & 2 abutments of 1st class masonry in cement, with two 75 ft. through spans of steel superstructure; 2nd Crossing, Kennetcook River bridge.—2 abutments of 1st class masonry in cement, with one 90 ft. through span of steel superstructure; 3rd Crossing, Kennetcook River bridge.—2 abutments of 1st & 2nd class masonry in cement, with one 25 ft. through span of steel superstructure; 1st Crossing, Five Mile River bridge.—2 abutments of 1st class masonry in cement, with one 90 ft. through span of steel superstructure; 2nd Crossing, Five Mile River bridge.—2 abutments of 1st class masonry in cement, with one 50 ft. deck span of steel superstructure; McCleur's bridge.—2 abutments of 1st class masonry in cement, with one 50 ft. through span of steel superstructure; the Shubenacadie River bridge has 4 pedestals of concrete, & 2 abutments, & 3 piers of concrete, with granite copings, all in readiness to receive 90 lin. ft. of steel trestle, & 2 steel spans of 209½ ft. each.

Stations have been erected at Brooklyn, Scotch Village, Kennetcook Corner, South Maitland.

The Maritime Merchant says: "Ever since Christmas last, negotiations have been in progress between the Midland Ry. Co. & R. G. Hervey, regarding the consolidation of the interests of the Midland & the N.S. Southern railways. The Southern is being pushed forward with vigor, & the Co. expects to have it completed this year from Shelburne & Liverpool to New Germany, & has had a large party of engineers in the field for some months endeavoring to get a line from Halifax to connect with the line it is now building. The negotiations with the Midland have proceeded so far, that W. G. Reid of that line, & P. S. Archibald, formerly Chief Engineer

of the I.C.R., have gone over the proposed route of Mr. Hervey's road, as well as inspecting the work done on the New Ross—New Germany section. It is said that the intention of the Midland Co. is to build a through line from Shelburne, on the Western coast of N.S., to Brule, on the Gulf of St. Lawrence. This would necessitate the building of a branch of the Midland from Truro to Brule, 22 miles, & continue the road from Windsor to New Ross, thence direct to Shelburne."

Newfoundland.—Ice floes in the Exploits River recently swept away the railway bridge.

Northern Pacific.—A number of delegations from different parts of Manitoba waited on the Provincial Government in Mar. to urge that steps be taken to get the N.P. to extend some of its present branch lines & to build others. One delegation urged the extension of the Portage la Prairie branch, which now ends at Beaver, to the Birtle district. Premier Macdonald stated that if the N.P. would make any fair terms he was willing to meet it, & he had no doubt that they could arrange terms without interfering with the plank in his platform re railways. If the N.P. would not build, the question of the advisability of the Government building would come up & become a live issue. There was no doubt that the Government could secure running powers over the C.P.R. or N.P.R. if it wished. The engineering difficulties were not great & it would not take long to build 50 or 75 miles. He had every reason to believe that he would be able to do something this season.

Another delegation urged that a line of about 50 miles be built from Indian Springs or Marieapolis on the Morris-Brandon branch, going southerly to Marrinhurst around Rock Lake, thence northwesterly into the Pelican Lake district.

President Mellen visited Winnipeg & Brandon early in April & in reply to a delegation which waited on him at Brandon, he promised to build a short extension of the Morris-Brandon branch as far as the exhibition grounds. Beyond this his Co. would do nothing & would build no more branches under existing circumstances. He said the Dominion Parliament had lately given the C.P.R. power to parallel every line the N.P. had in Manitoba & every line it had proposed building & his Co. would therefore do nothing further. He advised the people to build the roads they wanted with their own money. The charter of the N.P. provided for running powers over that Co.'s roads, & in addition he would promise them fair dealing & finally if the people wanted it his Co. would sell to them all or any portion of its Manitoba roads.

In reference to Mr. Mellen's statement Premier Macdonald said in an interview: "As there has been no meeting of the Executive Council since Mr. Mellen's visit, I have not discussed the matter with my colleagues yet, but personally I may say that there is only one thing left for us to do, & that is to accept Mr. Mellen's hint of buying out the branch lines of the N.P. or any other lines we can secure as Government roads, or else to build the roads for ourselves & have them operated under Government control. That is Government ownership according to the plank in our platform."

It is said that Mr. Mellen's statement did not refer to the branch which was built north from Portage la Prairie last year, 9 miles towards Lake Manitoba, & that it will be completed to the Lake, some 4 or 5 miles, this year. (Nov., '99, pg. 327.)

At Winnipeg Mr. Mellen said it was not probable the Co. would rebuild the Manitoba Hotel, as it did not pay. The Co. had bought some property south of the hotel site & would build a station in any event. (Oct., '99, 295.)

Nova Scotia Southern.—Chief Engineer A. Mitchell reported as follows on Mar. 12: The heaviest work on the line is at the extreme

ends, Shelburne & New Germany. From Shelburne to the crossing of Sable River, (15 miles east of Shelburne,) the line has been cleared & at least half of the grading is done, & the stone is being delivered on the ground, & cut, for the bridge across the Jordan River, the steel superstructure for which is purchased. At New Germany, the track has been laid to the LaHave River bridge, which consists of 4 steel spans on 5 granite piers, 45 ft. high, all of which is now complete, & we have on hand at New Germany 6 steel spans for other bridges, which are to be taken to their respective sites as fast as the track is laid to them. The road-bed is completed to North Brookfield, except the erection of the bridges & track laying. About 60,000 ties are delivered along the line, & the culvert & bridge masonry is all completed except the abutments for Pleasant River bridge, which are not fully completed. From North Brookfield, west, to & beyond Caledonia, a considerable force is at work grading. At New Germany some rails, splice bars, spikes, frogs & switches are piled, waiting for resumption of track laying, & our President shows me receipted invoices for 12,600 tons rails & the splice bars for them. Between Liverpool & Indian Gardens the clearing has been done to within about 2 miles of the Indian Gardens, & in the town of Liverpool the filling in along the waterfront to permit the removal of the tramway track from the main street, is about two-thirds completed." (Mar., pg. 73.)

North Lanark.—B. W. Folger recently addressed the Kingston City Council in the interest of this railway, which is projected to run from the Kingston & Pembroke Ry. at Flower, to Arnprior, to connect with the C.P.R. & Canada Atlantic. (Mar., pg. 78.)

Ontario & Rainy River.—Track has been laid from Stanley, westward 40 miles to Lake Shebandowan. (Mar., pg. 74.)

Ottawa & Gatineau.—The extension of this line from Gracefield, 60 miles north of Ottawa, to Maniwaki, will be proceeded with this season. It is said stations will be established at Blue Sea Lake, Bouchette, & Maniwaki. (Mar., pg. 42.)

Ottawa & New York.—Materials are being placed in position preparatory to the resumption of work on the bridges over the St. Lawrence at Cornwall. A strong effort will be made to have the structure completed & through traffic between the terminal points of the road established by July 1. (Feb., pg. 43.)

Parry Sound Southerly.—The Ontario Legislature has granted a cash subsidy of \$3,000 a mile for a railway, not exceeding 5 miles, to connect the town of Parry Sound with the Canada Atlantic Ry.

Pontiac Pacific Jet.—When this Co.'s bill authorizing it to build & operate a railway from or near Quyon or Shawville, Que., to Pembroke, Ont., came before the Railway Committee of the House of Commons recently objection was taken to granting the power unless the Co. would agree to extend its main line from its present terminus at Waltham to Ferguson's Point. It was agreed that this extension should be made within 2 years after the line reaches Pembroke or in default the charter to Ferguson's Point to be forfeited. (Dec., '99, pg. 359.)

Prince Edward Island.—W. B. Mackenzie, Chief Engineer of the I.C.R., has reported on the proposed bridge over the Hillsborough River, at Charlottetown, for the Murray Harbor branch of this line. Borings & surveys were made opposite Cumberland St., also on the shipyard & Mutch's Point site. It is proposed to build a bridge for both railway, vehicular & foot traffic. The width of the bridge will be 17 ft., exclusive of the sidewalks. It is proposed to support 7 piers on piles driven to the rock, & to extend 4 others down to bed-rock by the pneumatic process, as at these 4 places the mud is not sufficiently deep or firm to warrant the use of piles. The piers

are designed to be of cement concrete, laid in dry up to 4 ft. below low water & from this point freestone masonry to the top. The difference in cost in favor of the shipyard site as estimated by Mr. Mackenzie is \$88,360.99, not considering the cost of the right of way necessary to reach the Charlottetown end of the bridge on the Cumberland St. site. Mr. Mackenzie reports that on the shipyard site all the pneumatic tubes would be in shallower water than on the Cumberland St. site, that on the latter site an additional depth of 49 vertical feet of pneumatic work would be necessary & that the two piers on this site would almost reach the extreme limit of this class of work & consequently the danger & uncertainty would be largely increased, so much so indeed that a slight accident to the machinery supplying the workmen with compressed air at the highest limit of pressure would probably lead to loss of life & much extra expense. The railway approach to the Charlottetown end of the bridge on the Cumberland St. site, from its close proximity to the station, would be on a very heavy grade, 0.92 ft. per 100 ft., & the sharply-curved approach would begin immediately at the end of the station, a very inconvenient arrangement for trains & passengers. The Cumberland site is unsuited for future extension of the railway yard, the draw on that site would be opened more frequently than on the shipyard site, delaying railway & highway traffic, & the ship-room of the harbor would be much reduced. The report therefore condemns the Cumberland St. site & recommends the adoption of the shipyard one. The report was very fully considered at two meetings of the business men of Charlottetown held recently, & while there appeared to be a preponderance of opinion in favor of the Cumberland St. site from the city's standpoint, it was decided to recommend the Government to proceed on Mr. Mackenzie's report & to have the work gone on with at the earliest possible date.

The Minister of Railways recently stated in the House of Commons that the following amounts had been expended on the construction of the Belfast & Murray Harbor branch since June 30, 1899: Construction, \$12,693.20; surveys, \$3,031.37; right of way, \$2,864.54, & that \$9,938.19 had been expended altogether for surveys & location. He further stated that 11½ miles had been surveyed & located,

that the Government had not decided as regards proceeding with the survey of the cross line from Cardigan, passing at or near Montague bridge & Caledonia, as proposed by the late Government in 1896, that the placing under construction before June 30 next, of any further distance beyond the 11½ miles now under contract would depend upon the Department obtaining the information necessary to enable it to do so, & that no materials had been purchased for construction. (Mar., pg. 74.)

Quebec Bridge.—During a recent discussion in the Quebec Legislature on the Provincial aid to this bridge, which is to be paid at the rate of not more than \$30,000 a year, Mr. Nantel, M.L.A., said the Co. had a subscribed capital of \$250,000, of which 25% was paid up. Plans had been made & approved for the construction of a bridge at Chaudiere, but it might be built elsewhere, though the Chaudiere site was the most advantageous & certainly the least costly. Tenders had been called for, & of the three received, that recommended for adoption was from a firm in the U. S. for \$3,600,000, exclusive of the approaches, which would cost \$400,000 more, making the total cost \$4,000,000. Outside of its stock subscription the other resources of the company were the \$1,000,000 subsidy of the Dominion Government, the authorization obtained by the city of Quebec to contribute \$500,000 & the \$250,000 proposed to be voted by the Legislature. The Company had been by no means inactive, but it had been awaiting the action of the Legislature, & when this \$250,000 was voted it would be in a position to issue debentures & proceed with its work. He could not say exactly what the city of Quebec would vote, but it would scarcely be less than the subscription of the province.

An unverified despatch from Quebec says the directors have succeeded in concluding arrangements for the early commencement of work, that the steel contract has been awarded to a firm in the U.S., a portion of which, forming part of the foundations, has been ordered, & will be delivered in Quebec in Nov. next, & that the masonry work has been let to a firm at Cardinal, Ont., who will at once order their quarry work & begin to deliver material on the spot by June next.

Restigouche & Western.—It is expected construction will be resumed this spring, but

no definite information is obtainable. (Mar., pg. 74.)

Toronto, Lindsay & Pembroke.—The Ontario Legislature has granted a subsidy to this Co. of \$3,000 a mile for 36 miles from 15 miles east of Bancroft to or near Golden Lake.

White Pass & Yukon.—The following official information has been furnished us under date of April 12: "The line between Caribou Crossing & the new town of White Horse, formerly called Closeleigh, is practically graded. Track-laying began April 10 & will be pushed immediately to the 2 long trestle bridges on the 15th mile, across the canyon at the outlet of Lewis Lake. This canyon was caused by an attempt to lower the water-level in this lake. The water cut back on the river channel through the alluvial deposit of sand & gravel & drained about 80 ft. of water out of the lake. This made a great flood down the Watson river & washed out a number of the camps, causing considerable damage, but no loss of life. One locomotive, 9 flat cars & 25 miles of rails are at Caribou ready for the work. The balance of the rails will be shipped immediately upon the opening of navigation on Lake Bennett. This lake opens about 10 days sooner than Lake Marsh, giving us time to finish the track-laying to White Horse by the opening of navigation on the main river. This will admit of our immediately engaging & handling freight around White Horse Rapids. The work around Lake Bennett has been opened up for 7 miles & several new camps will be established this week down as far as the 13th mile. This is about the end of the heavy rock work. From the 14th mile on to the 27th, at Caribou Crossing, the work will be left until the snow is off the ground, then a large force of teams & men will be put on with the expectation of finishing the work by the latter part of July or beginning of Aug., giving us a through railway service from Skagway to White Horse, a distance of 112 miles. In the meantime the transfer of goods & passengers will be made on Lake Bennett by means of steamers. It was at one time thought advisable to put on large ferry barges & transfer the cars without unloading, but as this section is to be so soon completed this idea was abandoned. Plans for the drawbridge at Caribou Crossing have been approved by the Department in Ottawa & some of the material has already gone forward. This



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bridge will be put in in June & July. Another quite extensive improvement is under way across the big ravine at the switchback. A steel arched cantilever form of bridge will cross the deeper portion of the canyon. The approaches, which are on 16° curves, will be of trestle. The steel span is 400 ft. in length. The outlook for mining in Atlin, White Horse & down the Yukon is very favorable for the future. We have made an extremely low rate on copper & other ores from White Horse to the smelters on Puget Sound. Upon the completion of the road to White Horse we will take the ore for \$15 a ton from White Horse to the smelters on the Sound, a distance of over 1,100 miles." (Feb., pg. 43.)

Large coal bunker is to be built at Skagway.

Winnipeg, Selkirk, & Lake Winnipeg Ry.—R. R. Sutherland, solicitor, Winnipeg, gives notice of application to the Manitoba Legislature to incorporate a company under this name, to construct & operate a railway from Winnipeg via West Selkirk, to a point on the Red River at or near Selkirk, or on the western shore of Lake Winnipeg, & with other powers.

RAILWAY APPOINTMENTS, Etc.

Canadian Pacific.—D. McNicoll, heretofore Assistant General Manager, has been appointed Second Vice-President & General Manager, under the provisions of a by-law approved at the recent annual meeting, which authorizes the Board to appoint 2 or more additional vice-presidents, to be called second vice-president, third vice-president, & so on, no one of whom need necessarily be a director. The position of Vice-President has not been filled.

L. A. Hamilton has intimated to the President his desire to resign the position of Land Commissioner, owing to the serious illness of his only daughter, whose removal to another climate is considered necessary to restore her health. No action has been taken in the matter, & it is understood that the Executive is very unwilling to accept Mr. Hamilton's resignation. Should it be accepted it is expected he will be succeeded by F. T. Griffin, who has occupied the position of Assistant Land Commissioner for a number of years. At present Mr. Hamilton is in Cuba in connection with Sir Wm. Van Horne's interests there.

R. Atkinson, heretofore Mechanical Superintendent, has been appointed Superintendent of Rolling Stock, with office at Montreal.

As some misapprehension appears to exist as to the position to which J. G. Sullivan has been appointed, it may be stated that he is Divisional Engineer in charge of all construction work in British Columbia, reporting to the Chief Engineer of Construction, W. F. Tye. He has nothing to do with the maintenance of way on the Columbia & Western Ry. & is not in any way connected with the operating department.

W. Cross, heretofore General Master Mechanic of the Western lines at Winnipeg, has been appointed Assistant to the Manager, Mechanical Department, with headquarters at Winnipeg. C. R. Ord, heretofore in charge of the instructing & training car, succeeds Mr. Cross as Master Mechanic of the Western division with office at Winnipeg.

Several changes have recently been made among the roadmasters on the Western division. Jas. Horner, heretofore Roadmaster at Rat Portage, has been transferred to the Crow Foot section, with office at Calgary, Alta., replacing D. Black, retired. F. W. Green, heretofore Roadmaster at Ft. William, has succeeded Mr. Horner in charge of the Rat Portage section, Rat Portage to Winnipeg Jct., including Rat Portage yard. Mr. Green is succeeded as Roadmaster of the Thunder Bay section, Ft. William to Ignace, including Ft. William yard, by J. Esselmont,

for 9 years extra gang foreman on the division. The jurisdiction of Roadmaster A. J. Megrund, in charge of the Wabigoon section, has been extended to include Ignace yard.

The roadmasters in the Kootenay district of the Pacific division are now as follows: Columbia & Kootenay & Slocan Lake branches, Roadmaster Lewis, office at Nelson; Nakusp & Slocan branch, P. J. Gallagher, Rosebery; Rossland branch of Columbia & Western, J. T. Sullivan, Smelter Jct.; Boundary Creek branch, Columbia & Western, Roadmaster Johnston, Grand Forks.

Grand Trunk.—D. J. O'Connor has been appointed Chief Train Despatcher of 15th district; 16th district, Hamilton to Port Dover; 20th district, Buffalo to Goderich; 21st, 22nd, 23rd & 24th districts, vice J. Baxter, assigned to other duties. Office at Stratford, Ont.

W. W. Ashald has been appointed train master of the 4th & 5th districts & 2nd district west of Richmond, including Bonaventure terminals, in place of X. H. Cornell, who has accepted service elsewhere. The jurisdiction of C. St. Bevington, train master, Island Pond, is extended over the 1st district, vice W. W. Ashald, transferred.

J. R. Donnelly, heretofore Locomotive Foreman at York, has been transferred to a similar position at Montreal, succeeding G. Blackbird, who will not leave the employ of the Co., but who has not yet been located elsewhere. W. Newcombe, Road Foreman of Engines, is temporarily acting as Foreman at York.

B. Stimson, who has been Locomotive Foreman at Stratford for about 16 months, has resigned and is succeeded by B. Leikie, heretofore Locomotive Foreman at Fort Erie. J. Wright, of Stratford, succeeds Mr. Leikie at Fort Erie.

Jno. Murray, one of the oldest G.T.R. despatchers, recently located at Montreal, has resigned. He was stationed in Kingston a number of years ago.

The G.T.R. will be represented at the Paris Exposition by Jos. Quinlan, the Travelling Passenger Agent. During his absence his duties will be assumed by J. E. Malone, the Montreal City Passenger Agent.

W. H. Mourer, of Chicago, has been appointed Yardmaster of the Toronto yards between Don & Parkdale.

Mainly About People.

W. Stitt, Assistant General Passenger Agent of the C.P.R. at Winnipeg, left April 8 for Little Rock, Ark., for the benefit of his health. He has been suffering from rheumatism.

The late G. E. Tuckett, of Hamilton, held 1,010 shares in the Hamilton Steamboat Co., which are valued at \$90,900, & 460 shares in the Hamilton & Barton Incline Ry., valued at \$18,400.

President Shaughnessy, of the C.P.R., accompanied by Directors R. B. Angus & C. R. Hosmer & H. McDougall, of Montreal, visited Washington & other points south towards the end of Mar., the visit being purely for recreation. Mr. Shaughnessy did not visit Cuba as reported.

At the first annual meeting of the American Railway Engineering & Maintenance of Way Association in Chicago, Mar. 15, P. A. Peterson, Chief Engineer of the C.P.R., was elected 1st Vice-President to serve two years, & F. H. McGuigan, General Superintendent of the G.T.R., was elected a director to serve two years.

C. R. Palmer, General Storekeeper of the Intercolonial Ry., whose portrait appears on pg. 95, was born & brought up on a farm at Dorchester, N.B., on which was situated a stand of mills, consisting of lumber, grain & carding mills, all of which he learned to operate. He was educated at the village school

& at Mount Allison Academy, served as clerk in a ship yard for 2 years, & taught school for 12½ years, the last 10 being in the superior school of Sussex, N.B. He was station master on the I.C.R. at Dorchester for 13 years, & was Secretary of the Board of School Trustees & Superintendent of the Moncton city schools for 11 years, resigning in Aug., 1897, on being appointed to his present position.

The Great Northwest Central Ry. has been taken over by the C.P.R. & is being operated as the Northern Central section of the Western division, being placed under the jurisdiction of Supt. James, whose district includes the main line from Winnipeg to Brandon & the various branches in Manitoba. C.P.R. Roadmaster Panser has charge of the track, & the jurisdiction of the general officers of the Western division has been extended over the North Central section. As far as possible the services of the G.N.W.C. employes on the line will be retained.

New York & Ottawa R.R.—The U.S. Court at New York City has appointed H. W. Gays Receiver of the New York & Ottawa R.R. Owing to the delay experienced in reconstructing the bridge over the St. Lawrence River at Cornwall, the N.Y. & O. R.R. Co., was not in financial condition to carry the interest charge that was accumulating on its bonded indebtedness and at the same time take care of the cost of reconstructing its road between Moira & Tupper Lake. The reconstructing of the bridge will be completed during the coming summer and the reconstructing of the railway will be prosecuted under the receivership. The appointing of a Receiver for the N.Y. & O. R.R. has no effect on the Ottawa & New York Ry., the latter being a separate & distinct organization, & is the Canadian road over which the N.Y. & O. will reach Ottawa on completion of the Cornwall bridge.

SHIPPING MATTERS.

More Privileges for U.S. Vessels.

The regulations recently made by the Department of Customs respecting the entry of Canadian goods into the Yukon district, when carried in foreign vessels via St. Michael, are as follows:—

Collectors of customs in the Yukon provisional district are instructed that goods purchased in Canada (duty paid or the produce of Canada) may be admitted free of duty into the said district during 1900, unless otherwise ordered, when carried by St. Michael & the Yukon River from a port of Canada or of the U.S., notwithstanding that the transportation by water is partly or wholly by a foreign vessel, subject to the following regulations prescribed by the Minister of Customs:—A manifest or invoice, duly certified, and containing a particular description of the merchandise, by packages, marks, numbers & contents, shall be presented to the customs officer at the Canadian port of entry in the Yukon district. When the goods are shipped from a port in British Columbia, the certificate of a Canadian customs officer may be endorsed on the manifest or invoice, to the effect that the goods described have been shipped duty free from a port in B.C. When goods purchased in Canada as aforesaid are forwarded through the U.S., it is directed that the manifest or invoice shall have thereon a certificate of the Canadian exporter or his agent, attested before a customs officer in Canada. The identity of the goods shall be established to the satisfaction of the customs officer at the port of entry in the Yukon district, & shall be attested by the oath of the importer or his agent. Although one invoice only is required for Canadian customs purposes, it will be advis-

able for parties purchasing goods in Canada to provide themselves with invoices in duplicate, duly certified, so as to avoid trouble & delay in passing entries, in case of lost or stray invoices. Customs officers in the Yukon district are required to examine the marks & numbers on the packages landed, comparing the same carefully with the invoices, & opening such packages as may be necessary for examination. The foregoing regulations are temporary, applying only to the entry of Canadian goods via St. Michael & the Yukon River.

Richelieu & Ontario Navigation Co.

The str. Toronto will begin her season June 1, with Capt. Esford in charge. Throughout the summer she will connect at Kingston with the str. Bohemian, which will ply between that point & Montreal. The Bohemian is being lengthened 20 ft. in the Co's yard at Sorel. The Hamilton & Algerian will be commanded by Captains Baker & Mills, & will start May 1. They will run between Hamilton & Montreal, calling at Toronto, Cobourg & Port Hope. The Spartan & Corsican will be in charge of Captains Granger & McGraw, & will ply between Toronto & Montreal, beginning June 1. Extensive repairs have been made to some of the boats, new feathering wheels being placed in the Hamilton & new woodwork in the Spartan above the iron hull.

The Co.'s str. Columbian has been chartered by the Lake Ontario Navigation Co., which owns the steamers Hero & North King, to ply between Charlotte, Port Hope & the Thousand Islands during the summer months. The R. & O. Co. retains the right to use the Columbian from June 9 to Aug. 27, to run the Monday trip between Kingston & Montreal, the steamer returning to her route between Charlotte & Port Hope during the balance of the week between the dates named.

Montreal City Council has accepted the Co's tender for the St. Helen's Island ferry service.

The str. Kingston, which is to be built at Toronto, will be similar in character to the str. Toronto built last year, but will be some-

what longer & with greater accommodation. She will run on alternate days with the Toronto, on the route between Toronto & Prescott, & will be ready for June, 1901. Her length over all will be 290 ft.; breadth of hull, 36 ft.; depth of hull, 14 ft.; draught of water, 8½ ft. The hull will be of open hearth

steel with 4 water-tight bulkheads; the main deck also will be wholly of steel. The hull will have considerable dead rise on the bottom, the general shape being based on that of the Toronto. The increased length will enable the lines to be somewhat easier & finer than those of the Toronto.



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With the exception of a limited space for a small amount of express freight, & the space necessary for crew & propelling purposes, the entire steamer will be given up to passenger accommodation. On the main deck, aft, will be the smoking & correspondence rooms, barber shop, bar saloon, entrance hall, purser's office & baggage-room. In the middle will be the engines & boilers & a portion of the crew space; & forward the dining-room & pantries, extending out the full width of the sides, & lit from both sides, & a raised glass canopy in the ceiling. This position of the dining-room is admirably adapted for purposes of observation, as well as for convenience with the kitchen below. It will cause a large gain in passenger accommodation, as on most steamers this space is devoted to freight. With the exception of the open seating space at the bow-sides & stern; the saloons & staterooms will occupy the whole of the 1st & 2nd decks, above the main deck, arranged in the form usual on the large inland steamers. An exceptional feature, however, will be a large, handsome skylight in the roof, immediately over the glass canopy in the ceiling of the dining-room. There will be 165 state-rooms & 8 parlor-rooms with bath-rooms attached. The 3rd deck, above the main deck, will have the pilot-house forward, & behind it the rooms for the captain, mates & wheelmen; all the rest of this deck will be an immense promenade for passengers. Following the principle adopted in the case of the str. Toronto, the ornamental work will be of original design & finish throughout.

Canadian Inland Transportation Co.

A prospectus has been issued in connection with the transfer of the privileges, &c., of the Connors Syndicate to the Canadian Inland Transportation Co., by which it appears that the promoters are to receive \$1,500,000 of stock for their services, &c. The prospectus reads as follows:—

"The Canadian Inland Transportation Co., by its charter, is authorized to issue stock to the amount of \$4,000,000. It may also from time to time issue its bonds in aid of the acquisition of property, the bonds to be secured by mortgage. This Co. now proposes to purchase from the so-called Connors Syndicate the allotment & franchises recently granted by the Harbor Commissioners of Montreal, & to pay for the same by issuing \$3,000,000 of its stock, & \$1,000,000 bonds. The Connors Syndicate shall turn over to trustees, for the benefit of the Co., \$1,500,000 of its stock; also the \$1,000,000 bonds. The remaining \$1,000,000 of stock is offered for subscription at par. Each subscriber for these shares shall receive in addition to his subscription from the Connors Syndicate bonds to the amount equal to his subscription. The avails of the sale of this stock to be used in the erection of elevators, warehouses &

general equipment of its plant. To provide for the future expansion of the Co. it is proposed to authorize a total bond issue of \$4,000,000 for 20 years at 5%, but of which only \$1,000,000 is to be now issued to the syndicate as aforesaid, & which is to be distributed among subscribers of stock; the remaining \$3,000,000 to be issued only by the corporation as the necessities of the Co. may require for the enlargement of its plant. Thus the subscribers of stock will hold bonds secured by a 1st mortgage on all the Co.'s property, including the franchise & all rights under it.

"In Nov., 1899, the Canadian canals were deepened to accommodate boats drawing 14 ft. of water, from Port Colborne to Montreal, completing what is known as the St. Lawrence route. Heretofore no ship drawing this depth could go below Prescott, & from this point to Montreal 9 ft. was the maximum depth of the water. This would permit ships to carry but from 25,000 to 30,000 bushels of grain. Vessels of the latest design, 85% box, 250 ft. long, 43 ft. beam, will carry through the Canadian waterway an average cargo of 85,000 bushels on a 14 ft. draft. One steamer & two barges constitute a tow, & handling them in this way gives the greatest earning power with the greatest economy in the operating expenses. The 3 ships will carry 250,000 bush. of grain.

"The lowest average rate on grain for any one month during the last 10 years from Duluth to seaboard was 4c a bush. A steamer & 2 barges operating between Duluth & Montreal will carry 250,000 bush. At 4c a bush. this would result in gross earnings of \$10,000. The charges against this would be: Operating expenses, \$200 a day, 20 days for round trip, \$4,000; shovelling charges, \$3 per 1,000 bush, \$750; elevator charges, Montreal, $1\frac{1}{2}$ c a bush, \$250; towing through canals, \$200; total, \$6,200; net earnings per trip, \$3,800. Estimating 7 months for a season of navigation, which is very conservative, a tow could easily make $10\frac{1}{2}$ trips each year, which would show an earning capacity of \$39,900 for each tow, & 7 tows would earn \$279,300, or 10% interest on the cost of ships, viz., \$2,695,000, as below. As shown above, our elevators will be paid for the use of steam shovels, & the charges will not be less than \$1 per 1,000 bush. of grain the first year at Montreal. Estimating conservatively, we will handle 30,000,000 bush. The revenue from this will be \$30,000, or more than the entire cost of operating the elevator. The charges of $\frac{1}{2}$ c a bush. for elevating at Montreal would bring the Co. \$150,000. At Port Colborne we would handle 20,000,000 bush of grain, & the earnings from elevating at $\frac{1}{2}$ c a bush would be \$100,000 net, the revenue from the shovelling charges paying for the cost of operating. At Montreal we would haul through the warehouses of the Co. not less than 500,000 tons of merchandise or package freight. The earnings would not be less than 20c a ton, or \$100,000 for a season, making the net earnings in the aggregate \$830,300.

"The total cost of our plant would be as follows: Seven steamers, at \$165,000, \$1,155,000; fourteen barges, at \$110,000, \$1,540,000; elevator & warehouse at Port Colborne, \$400,000; elevator & warehouse at Montreal, \$900,000; total, \$3,995,000. The above figures are all based on the lowest freight rates on record. The terminals in Montreal will be in better shape to give despatch to ocean liners than any other seaport terminus. The distance from Liverpool is 300 miles less than to New York, thus saving 600 miles to ocean steamers each trip. Every trans-Atlantic steamer coming to our terminals will be guaranteed a 48-hour clause for loading & unloading. This also will effect a saving from 5 to 8 days in the time required to load & unload at other ports. This will result in

bringing to Montreal more ocean steamers in the coming 5 years than have put in there during the past 10 years. The sailings from Montreal last year were 808 ships, during 1898, 866 ships. There are no permanent structures in Montreal used for the purpose of elevating grain. Those in use there now are floating houses. The lowest known rate from the head of Lake Superior to ocean points is $12\frac{1}{2}$ c per 100 lbs. Assuming that we could get 10c or \$2 a ton, our ships will carry 2,500 tons, a tow carrying 7,500 tons would bring earnings: gross, \$15,000. The charges against this would be: Operating expenses, \$200 a day, 20 days for round trip, \$4,000; towing through canals, \$200; freight handling charges, 50c a ton, \$2,250; total, \$6,450; total earnings, \$8,550. Ten & a half trips each season, each tow would earn \$89,775, seven tows would earn \$638,425, thus showing that boats in the package freight business would earn \$148,225 more than if engaged in carrying grain. This would put the freight sorted & piled in the warehouse at Montreal, & we can load the transatlantic steamers at one-third less cost than is charged at any seaport in the U.S. The earnings on grain shown previously are based on a 4c. rate, while the average rate for the last 3 months of navigation of 1899 was 7c. a bush. from Duluth to seaboard. At the same cost of operating, etc., as show this rate of 7c. would give a net earning of \$830,550, as against \$276,500 earned on a 4c. rate. One of the competitors of the St. Lawrence route is the Erie canal. This waterway begins at Buffalo & ends at New York, & is composed of 352 miles of canals (Buffalo to Albany), & 154 miles of Hudson River (Albany to New York), total, 506 miles. This canal has always and now is a competitor of the railway trunk lines between Buffalo & New York. The maximum capacity of its boats is 8,000 bush., & it requires 18 to 20 days to make a round trip. The proposed ships of this Co. will be many times the capacity of the Erie Canal boats & will make the round trip in less than one-half the time. The foregoing propositions are based on no return cargo from Montreal to western ports, but several ocean lines are endeavoring to enter into traffic arrangements whereby hundreds of thousands of tons of freight will be delivered to us at Montreal each year."

A recent despatch from Chicago stated that the American Shipbuilding Co. had received the contract for the construction of half-a-dozen vessels for a new company which will operate a line between the lakes & Montreal. This is in accord with the programme mapped out by the Connors syndicate. While the representative of the Connors syndicate in Montreal will make no official statement, it is pretty well understood that the syndicate is interested in the new concern, & that the object is the transportation of grain from the great lakes down the St. Lawrence to Montreal. The ships, says the despatch, are to be ready in the autumn. The new line will be the first in the field since the Dominion Government completed its great waterway around the rapids of the St. Lawrence, by which boats drawing 14 ft. of water can steam directly from Duluth, Chicago, & to the ocean steamships at Montreal. A. B. Wolvin, of Duluth, is at the head of the new company, but with him are associated many of the most successful vessel-owners on the lakes, who have faith in the Montreal trade. The boats will carry about 75,000 bush. of wheat each, & will be of steel construction. Specifications are now being prepared. In order to have the capacity already mentioned the vessels will be 250 ft. long, 40 ft. beam, & have a draught of 14 ft. The favorite method of bringing these vessels down the canal is in tows of 3 vessels, 1 steam & 2 consorts. The steam vessel has a capacity of about 75,000

bush. of grain, & the consorts of 80,000 bush. each.

W. G. Conners, before leaving Montreal for Buffalo, April 13, said that the ice would cause some delay in the construction of the elevators, but despite this the syndicate would begin work as soon as the Harbor Commissioners had examined & approved of the plans. The syndicate would endeavor, he said, to do business next fall with oceanliners, or at least to secure grain for winter storage.

The Marine Insurance Outlook.

The business outlook for the coming season of navigation, as viewed through the glasses of the marine insurance men, is very promising. A representative of a Toronto company recently said it was almost too early to talk rates. The U.S. underwriters, desiring to keep the season in check until the ice was all gone, deferred the declaration of their rates, & the Canadians followed in their wake. It was practically assured, however, he said, that there would be no change in the rates or alteration in the terms of agreements of last year. Some slight change in classification would make things a little better for owners of large first-class boats.

Losses last year, he said, were numerous on hulls, but comparatively light in the aggregate, & on cargoes were light. But they were not low enough to affect insurance rates. Totals had not been prepared last year. For a considerable time the losses on the lakes totalled about \$1,250,000, but in 1895 they

went \$2,000,000, & in 1898 over \$3,000,000.

The underwriters, he said, were hoping for light losses this year, because a busy season was in prospect, & vesselmen were always more cautious when their boats were in great demand. Freight rates would probably be slightly lower this season than last. Many season contracts had already been made, shippers being afraid that rates might jump up during the term of navigation, as they did last year.

Red River Navigation Improvements.

The plans for the works at St. Andrews Rapids, between Winnipeg & Selkirk, call for a dam across the Red River 800 ft. in length, a canal 1,900 ft. in length, one set of locks 215 ft. in length, & dredging in the river for some 400 ft. The lock will be 215 ft. long, 45 ft. broad & the solid concrete will be 38 ft. deep, giving the locks a high-water depth of 30 ft., while at low water the depth will be 11 ft. The gates of the lock will be of steel. The approach to the locks will be by a canal from a point on the west bank of the river, a distance of 1,500 ft. The canal will be 100 ft. wide, & have a depth of 11 ft. The distance to the canal from the river will be partly wooden crib work, filled in with stone & will be 290 ft. in length. The canal extends 400 ft. north of the lock to the river, which will be dredged to a depth of 9 ft. for about 100 yards. The dam to regulate the river will extend from the east side of the locks 800 ft. to the east bank of the river. It will be of concrete, granite faced, 32 ft. at the base

& 18 ft. 5 ins. at the top. The dam is provided with 7 piers & 2 abutments, & also with sluice gates. The piers & abutments can be used as the base of a service bridge, & from this could be worked a system of shutters & movable frames, by which the height of the dam could be increased 12½ ft. The bridge & shutters will form a separate contract.

Notices to Mariners.

The Dominion Department of Marine has issued the following notices:

No. 10, Mar. 6, Nova Scotia, 1. Lurcher shoal buoy disappeared. 2. New Brunswick, Zephyr rock light ship only to be maintained in autumn.

No. 11, Mar. 10, Nova Scotia, Northwest Lodge buoy adrift.

No. 12, Mar. 15, Prince Edward Island, change in North Rustico lights.

No. 13, Mar. 22, Ontario, 1. Snake Island light. 2. U.S.A., New York, Tibbet's Point fog alarm.

No. 14, Mar. 22, British Columbia, 1. Rock in Tricomali Channel. 2. Canoe reef, Portier Pass buoy.

The U.S. Hydrographic office has issued the following notices for the Great Lakes:

No. 279, Mar. 24, Lake Superior, Superior Bay, improvement in Superior Front Channel.

No. 280, Mar. 24, Lake Michigan, Sturgeon Bay Canal, pierhead light increased in intensity.

No. 305, Mar. 31, Lake Erie, Erie Harbor entrance, changes in aid to navigation.

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No. 306, Mar. 31, Detroit River, Ballard Reef Channel, changes in aids to navigation.
No. 332, Apr. 7, Lake Superior, Grand Marais Harbor, life-saving station established.
No. 333, Apr. 7, St. Mary's River, additional spar buoys established.

Maritime Provinces & Newfoundland.

F. S. Cormier, of the I.C.R., at Moncton, has invented an emergency steering gear which was recently tested on the Government str. Lanstowne near Halifax.

The Pickford & Black Steamship Co., Ltd., has been incorporated under the Dominion Companies Act, with a capital of \$600,000, the incorporators being R. & C. S. Pickford, W. Anderson Black, G. W. C. Hensley & W. Allan Black, of Halifax.

The Government str. Stanley is running between Charlottetown & Pictou, the Minto still running on the Georgetown-Pictou route, carrying the mails. The past winter is the first on record in which mails have not been carried in open boats between Cape Tormentine & Cape Traverse.

The annual report of W. Bell Dawson, Engineer in charge of the survey of tides & currents in Canadian waters, for 1899, has been issued in pamphlet form by the Department of Marine, Ottawa. Tide tables for Halifax, Quebec & St. John, N.B., for 1900, with tide differences for the Atlantic coast of Nova Scotia, & for the St. Lawrence River from Three Rivers to Gaspe, have also been issued in pamphlet form.

Province of Quebec Shipping.

Montreal Harbor Commissioners have asked the Dominion Government to advance \$110,000 to enable them to start the important improvements at the harbor front which have recently been decided on, & to conduct the ordinary business of the port till the port revenues are available.

The Quebec Board of Trade has adopted a report, insisting upon the practicability of winter navigation from Quebec to the ocean, & claiming that it is perfectly safe to navigate the Lower St. Lawrence for 11 months in the year. The real difficulty in the way is the almost prohibitory rates of insurance charged in winter by the underwriters. The board urges that the Government should pay the difference between ordinary & winter rates of insurance, while experiments are made by a line of vessels in the winter navigation of the St. Lawrence. The board supports the compulsory inspection of deck loads in different Canadian ports, in order that the discriminating rates of insurance imposed by Lloyds may be reduced.

The allotment of berths in Montreal harbor has been completed. The Elder, Dempster Co. will occupy 450 ft. on the outside of the Island wharf for its Bristol service, & 800 ft. at sections 21 & 22 for the Liverpool & London lines. D. Torrance & Co. receive 850 ft. at sections 16 & 17 for their Liverpool service. H. & A. Allan got 400 ft. on the east side, & upper end of the new pier, & the whole of the west side. The Richelieu & Ontario Navigation Co. will occupy the whole outside of the Victoria pier. The McLean, Kennedy Co. go to Hochelaga, where they receive 400 ft. at sections 37 & 38. The Robert Reford Co. have the inside of the Victoria pier, 800 ft. at section 23, & 400 ft. at the east side of the new pier. The Johnston Line will have the same berth, at the C.P.R. elevators, as it had last year, until another pier has been finished. The Leyland line gets 500 ft. at section 23, & the Manchester boats go to section 25. The greater part of the upper end of the harbor will be left free for the carrying on of the proposed improvements during the coming summer.

Ontario & the Great Lakes.

It is expected that the Calvin Co.'s tug Reginald will again tow the Standard Oil Co.'s tank barges between Port Huron & Montreal.

J. R. Roy, of the Dominion Department of Public Works, is to co-operate with W. T. Jennings, who has been appointed by Toronto City Council to report on Toronto harbor.

In our last issue it was stated by a typographical error that the Muskoka Navigation Co.'s str. Nipissing was having steel "sponsons" fitted to her sides to steady her. Obviously "sponsons" was intended.

Our last issue contained a full description of the Canada Atlantic Ry. Co.'s str. Ottawa, now being built. It has been decided to put in between decks, & to make her a full pack-ge boat. She will have two masts instead of one.

The Penetanguishene Navigation Co. has been incorporated under the Ontario Companies Act with a capital of \$40,000 & head office at Penetanguishene. The provisional directors are W. McM. Thompson, C. E. Wright & A. B. Thompson.

Blasting has been going on during the winter in Goderich harbor. It is expected to have an 18-foot channel to the new elevator by May 1, & the dredging will be carried on until vessels of 22 ft. draught can go from the lake to the dock.

The hull of the str. Welshman has been rebuilt at Ottawa. Two dredges for the Dominion Government are being built there. The tug S. T. Easton is being overhauled, & the Ottawa Sand & Gravel Co.'s barges & steam dredge are being refitted.

In the enforcement of St. Mary's river navigation rules this season three men of the U. S. revenue cutter service will be stationed at Sailors' Encampment, three at the dyke & three at the island cut, & a watch will be maintained day & night.

A claim of \$2,000 has been made on McArthur Bros. of Toronto, owners of the str. Tecumseh, by the owners at Chicago of a cargo of grain taken to the M. T. Co.'s elevator at Kingston last fall by the above-named steamer, & damaged, partially owing to stress of weather, & also by leakage in the hull.

New rates have gone into effect in connection with the Government graving dock at Kingston. Sunday rates will be one-half regular; the second day of occupancy, if under 5 hours, will be charged half day instead of full day as heretofore. Electric lights are being installed in the dock, enabling work to be carried on all night.

The outlook for lake navigation this season is very favorable. In good times the travel is always large & the picturesque Canadian lake & river tourist routes are sure to be largely patronized this year. Arrangements are being made to handle a larger traffic, both passenger & freight, by inland navigation companies the present season.

The Cleveland, Toledo & Put-in-Bay route will be operated jointly by the Cleveland & Buffalo Transit Co. & the Detroit & Cleveland Navigation Co. again this season. The C. & B. steamers, State of New York & State of Ohio & the D. & C. line str. City of the Straits will take care of the business. General Manager Newman, of the C. & B. line, states that an early start is out of the question. There is more ice in Lake Erie than there was a year ago, & it will be pretty close to May 1 before the port of Buffalo is open.—Marine Record.

A return brought down in the House of Commons sets forth the recent literature upon the Montreal, Ottawa & Georgian Bay Canal project. It includes a favorable resolution passed by the Liverpool Chamber of Commerce last year, & a memorandum to the Minister of Railways & Canals from McLeod Stewart, which, after reciting the grounds upon which the promoters base their request for Government aid, asks that Parliament guarantee interest at 2½% upon \$25,000,000 of the Co.'s bonds for 25 years. Parliament last year made a grant for a survey of the proposed route, which has been made during the recess.

The Kingston Board of Trade has passed a resolution urging the Dominion Government to complete the dredging of Kingston harbor this year. It endorses improvements at Port Colborne, but claims that Port Colborne is not the place for elevators; they must be at the foot of lake navigation, so that grain may be called for & reach Montreal for ocean shipment at the shortest notice & in all weathers, that it is a mistake to suppose that grain can be carried across Lake Ontario in barges, & whereas grain has been carried there at 3½¢ a bush., with the improvements named by the Kingston board it could be carried at 3¢ & no other water route could establish a competitive paying rate.

Judge Falconbridge recently gave judgment in Toronto in the case of Craig vs. Montreal & Cornwall Navigation Co., an action tried at Kingston for \$1,000 commission on sale of the str. Rocket for \$20,500. The Judge finds that the vessel was sold through the instrumentality of plaintiff, but that, as the defendant did not realize the full price named, he is not entitled to the whole amount. Toulmin v. Miller, 58 L. T. N. S. 96, followed. Judgment for plaintiff for \$300 & costs, unless a reference as to the amount is desired by either party, in which case such party must elect within 10 days to take a reference, & further directions & subsequent costs will be reserved. Entry of judgment stayed for 30 days.

The grain-carrying fleet of the great lakes is to be materially augmented this summer by vessels built in England & Scotland. Two are being built for the Hamilton & Fort William Navigation Co., one at Dundee & the other at Newcastle-on-Tyne. Several other big barges are being secured in Great Britain by the Consolidated Lake Superior Power Co. for carrying iron ore from Michipicoten. The boats for the Hamilton & Fort William Navigation Co. are being built of steel, & will be fitted with the most modern machinery & equipments. They are 225 ft. long. Their capacity will be 36,000 tons each, or about 120,000 bush. of grain. These loads will be carried with a draught of 18 ft. They will be able to carry about 20,000 tons through the Welland canal. Both vessels are expected out before the end of June, & will be christened the Winona & the Strathcona.

A Detroit despatch says: In all probability a second steamer will be put on the Windsor Sault Ste. Marie line, operating along the Canadian shore & Georgian Bay. Manager W. J. Brown is negotiating with the Northern Navigation Co. for the str. Majestic. The N. N. Co. has just purchased the Beatty Line, & is understood to be willing to sell. Last year the str. Carmona maintained a weekly service between the Soo & Windsor, but the passenger & freight demands were more than she could meet, & during the winter her engines were put in a new & much larger hull, & by the opening of navigation the Pittsburg, as the new steamer is named, will be ready for use. Still the Pittsburg will not be able to handle all the business of the line, & the need of a second steamer is imperative. The Majestic is 250 ft. long, & will accommodate about 300 persons besides a great deal of freight.

The str. Rideau Queen, being built at Kingston by the Rideau River Navigation Co., is expected to be ready for service by June 1. The saloon, state-rooms, & dining-room will be finished in fine wood, & will be handsomely furnished & upholstered. There will be single state-rooms & family suites, each one supplied with water & electric lights. The dining-room will be large, well ventilated & furnished with handsome electric fixtures. It will be much larger than that on the str. James Swift. A smoking-room will be situated on the upper deck near the wheel-house. The Co. intends advertising the Rideau extensively this season, & with the two vessels, the Rideau Queen & the James Swift, in use, expects to improve the service. The Rideau Queen has been designed chiefly for passenger traffic. She is 111½ ft. long, 28 ft. 4 ins. beam, 7½ ft. deep, 4½ ft. draught aft & 3½ ft. forward. It is likely the two vessels will be run so as to arrive in Kingston in the morning, instead of at night, as formerly.

The Northern Navigation Co. of Collingwood, which last season absorbed the "White" & the "Black" lines of steamers running on Georgian Bay, Lake Huron & Lake Superior, has taken over the Beatty line of boats, which has been run by the Northwestern Transportation Co. of Sarnia. The Beatty line steamers will go on the route from Sarnia to Duluth, while the other steamers belonging to the Co. will ply on the other lakes. President Jas. Scott, of the Northern Navigation Co., says: "We have purchased a controlling interest in the Beatty Line, & hereafter it will be operated in conjunction with our steamers. The Northern is now the chief factor in the lake passenger trade on the Canadian side of the upper lakes. It is a trade that is developing very rapidly & that is but in its infancy. We expect that it will have a great future & wish to hold it in Canadian channels, knowing how difficult it is to change routes after they are once established. Plans are being prepared for a steamer to be built at a Georgian Bay Port, & we expect to have them before us for action very soon. It is our expectation that at least two new vessels will be required at once to handle the Co.'s business."

British Columbia Shipping.

M. Martin, of Vancouver, is building the hull of a steamer there for the Canadian Caning Co. She will be 90 ft. long over all, 17 ft. beam & 8 ft. deep.

The steamer for Fraser River service, which is being built at New Westminster for Capt. McKean, is about completed. The machinery is being supplied by the Polson Iron Works, Toronto.

The Canadian Pacific Navigation Co. has created a new issue of debenture bonds amounting to \$250,000, bearing interest at 6% & repayable in 13 years from Feb. 15, 1900. Bonds to the amount of \$100,000 are for sale by the Bank of British Columbia.

T. W. Paterson, of the Victoria & Sidney Ry., has had a passenger & freight steamer,

the Iroquois, built at Port Moody, to give a daily service to the islands between Sidney & Nanaimo. She is 82 ft. long, 21 ft. beam & 8 ft. deep, tonnage 94 net. The boiler & engines were built by the Polson Iron Works, Toronto. The engines are compound condensing, 22 x 16 & 10 x 16, giving a speed of 10 to 12 knots. Capt. Cavin, late of the Laving, has been appointed to her.

Yukon & Northern Navigation.

The Dominion Government has granted permission for goods destined for Dawson to be carried in U.S. bottoms via St. Michael's.

The str. Cutch arrived at Vancouver from Skagway April 9 with the news that the Yukon river is open, the breaking-up taking place three weeks earlier than usual.

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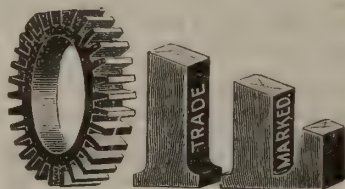
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*Attorneys with last
month's ads.*

Northwest Grain Storage Capacity.

Following is the elevator & grain storage capacity in Manitoba & the Northwest Territories, including Port Arthur, Fort William & Keewatin:—

Canadian Pacific Ry.....	17,243,000 bush.
Northern Pacific Ry.....	1,641,000 "
Manitoba & Northwestern Ry.	1,302,500 "
Great Northwest Central Ry.	492,000 "
Canadian Northern Ry.....	230,000 "
Manitoba & Southeastern Ry.	40,000 "
Total.....	20,908,000

The largest elevators are those of the C.P. R. Co. at Fort William, viz., A, B, & D, 1,250,000 bush. each, & C, 1,500,000 bush.; Lake of the Woods Milling Co., Keewatin, 750,000 bush.; Ogilvie Milling Co., Winnipeg, 320,000 bush.; C.P.R., Port Arthur, 315,000 bush.; Northern Elevator Co., Winnipeg, 140,000 bush.; Alexander, Kelly & Co., Brandon, 125,000 bush.; Farmers' Elevator Co., Portage la Prairie, 110,000 bush.

The following figures showing the storage capacity on Jan. 1 of each year since 1891, shows its rapid growth:—

1891.....	7,628,000 bush.
1892.....	10,366,800 "
1893.....	11,467,100 "
1894.....	11,817,100 "
1895.....	12,000,000 "
1896.....	13,873,600 "
1897.....	14,999,300 "
1898.....	18,378,500 "
1899.....	19,958,000 "
1900.....	20,908,000 "

The daily capacity of the flour mills in Manitoba & the Territories is 10,230 barrels, & of the oatmeal mills 750 barrels.

The following table shows the Manitoba wheat export, including flour, the export of the Territories being included during the last years:—

Crop 1886.....	4,000,000 bush.
" 1887.....	10,500,000 "
" 1888.....	4,000,000 "
" 1889.....	4,500,000 "
" 1890.....	11,500,000 "
" 1891.....	14,000,000 "
" 1892.....	14,000,000 "
" 1893.....	12,000,000 "
" 1894.....	15,000,000 "
" 1895.....	29,000,000 "
" 1896.....	14,000,000 "
" 1897.....	22,000,000 "
" 1898.....	23,000,000 "
" 1899.....	35,000,000 "

ELECTRIC RAILWAYS.**Maritime Provinces & Newfoundland.**

The Cape Breton Electric Tramway Co. has been incorporated by the Nova Scotia Legislature.

Quebec Electric Railways.

Montreal Park & Island Ry.—On Mar. 30 Judge Charland rendered judgment in the case of the town of St. Louis against this Co. & D. Morrice & others, intervenants. The case arises out of contract existing between the town & the Co. for the operation of an electric road on certain streets, viz., St. Lawrence, St. Urban, Park avenue, St. Louis & Mount Royal. The town asked that the franchise be annulled on the ground that the Co. had not fulfilled its obligations of giving an electric service similar to that given by the Montreal St. Ry. in the city. A by-law was adopted by the Council in 1893, in favor of A. J. Corriveau & others, & transferred by the latter to the defendant, granting the franchise

in question. The electric road on Park avenue & St. Lawrence St. was to be in operation in 1893; the fares & timetable were to be the same as those of the Montreal St. Ry.; tickets were to be sold at the rates of the latter company, & transfer tickets to be accepted by both companies to be given. Exemption from taxation was granted for a term of years, & the Council reserved the right to cancel the contract if the Co. failed to carry out its contract, which the town alleged it did. A notarial contract was passed, & later the Co. was substituted to Corriveau et al. in all the rights of the latter. After quoting the clauses in the contract between the city & Montreal St. Ry. as to service, fares, etc., the town proved that these conditions had not been fulfilled, & asked that the contract be annulled. A judgment was rendered at the instance of the town on Mar. 15, 1898, giving the defendant two months in which to carry out its obligations. An intervention was subsequently produced to the effect that the road had been declared a road to the general advantage of Canada, & placed under the control of the Railway Committee of the City Council, & that the Co. had mortgaged all its property to the intervenants as trustees for the bondholders who had secured the Co.'s debentures in good faith. It has been proven that the Co. has not complied with its obligations as defined by the judgment of Mar. 11, 1898, which was confirmed in appeal on June 17, 1898, ordering the Co. to carry out its contract & remove the grievances of which the town complained. In consequence the Co. is now declared to have forfeited the privileges granted it in its contract with the town & by the by-law adopted by the Council, but this without prejudice to the acquired rights of third parties. The Court held there was no reason to grant the \$6,000 damages asked for by the town on the ground that these damages are not the direct result of the inexecution of the Co.'s obligations. The annulment of the by-law & contract does not either carry with it the obligation on the part of the Co. to reimburse to the town \$18,559 which the town claimed it had incurred in expenses for reasons set forth in the town's demands. Nor is the town justified in asking that the penalty of \$20 a day from the date of the institution of the action until final judgment be imposed. The judgment concludes by stating that the annulment pronounced cannot affect the acquired rights of the intervenants, & for this reason rejects the pleas of the Co. & the intervenants' intervention & maintains the action in part, declares the contract of April, 1893, dissolved & authorizes the Council to repeal the by-law of Mar. 27, 1893, the whole without prejudice to acquired right of third parties & condemns the defendant & intervenants respectively to the costs of action & intervention & rejects the surplus of plaintiff's conclusions. The judgment is unsatisfactory both to plaintiff & defendant & is being appealed from.

Montreal St. Ry.—The gross earnings are:

	1899-1900.	1898-1899.	Increase.
Oct.....	\$145,877.20	\$133,619.63	\$12,257.57
Nov.....	133,489.12	125,125.09	8,364.03
Dec.....	137,681.19	127,768.38	9,912.81
Jan.....	136,086.33	125,276.04	10,810.29
Feb.....	128,509.64	113,832.02	8,677.62
Mar.....	127,212.18	123,754.11	3,458.07
	\$802,855.66	\$749,381.27	\$53,474.39

The shareholders have authorized the issue of \$1,000,000 additional stock to provide for extensions of the line, power plant, rolling stock, etc. It will be issued to the shareholders at par, 1 share for each 5 held.

It is said negotiations between the M.S.R. Co. & the Royal Electric & Chambly Power Companies for an advantageous contract to all concerned are nearing completion.

The Co. has been fined \$25 & costs for not maintaining a proper service on Amherst St.

It is rumored that the Co. will provide special cars for smokers.

Quebec Ry., Light & Power Co.—Notice is given that the Co. has deposited in the office of the Secretary of State two mortgage deeds to the Montreal Trust & Deposit Co., executed for the purpose of securing bonds issued by the Co.

Ontario Electric Railways.

The Belleville Electric Ry. was advertised to be sold on Mar. 1, but no bids were made for the property. The Bank of Montreal is said to control it & is now offering it by private sale. (Feb., pg. 55.)

The Central Ontario Power Co., recently incorporated, has elected the following officers: President, Hon. R. Harcourt; Vice-President, F. A. Hall; Managing Director, J. A. Culverwell; other directors, Hon. P. McLaren, E. Coste, M.E., J. Kendry, M.P., R. J. McLaughlin, F. W. Barrett, E. T. Adams, M.D., H. J. Taylor & H. E. Larkin. The company has opened its head offices at Peterborough. (Mar., pg. 91.)

Electric & Street Railway Mortgages.—The Attorney-General has introduced a bill in the Ontario Legislature, providing that every mortgage made by any company incorporated under the provisions of The Electric Railway Act, or of The Street Railway Act, whenever the deed creating such mortgage encumbrance may have been executed may be enforced by judgment for foreclosure or sale in the same manner & to the same extent as such mortgage could be so enforced if the same had been made by a company not incorporated for any public purpose; & that effect shall be given to this act as well in any action now pending as in any which may be hereinafter brought. In moving the second reading of the bill the Attorney-General said its object is to enable mortgages securing the bonds of such companies to be enforced by judgment for foreclosure or sale in the same manner & to the same extent as the mortgages of other railway companies. The spirit of recent English decisions is where a public franchise is concerned no proceedings shall be taken upon the mortgage which shall lead to the breaking up of the undertaking or have the effect of depriving the public of any benefit resulting from the enterprise. The same principle is now sought to be applied to electric railways & street railways in Ontario. Mr. Whitney said the bill was of great importance & should be carefully considered. He cited the case of the Sun Life Insurance Co. of Montreal & the Cornwall St. Ry. The former company held a mortgage on the railway, & the result of foreclosure proceedings under this act would be that a Quebec or Dominion company would be operating an Ontario street railway. The Attorney-General said that with reference to the case pointed out, next session a new charter might issue providing for the operation of the Co. under the proper legislative jurisdiction.

When the House went into committee on the bill the Attorney-General amended it by providing that the purchaser of such a company under any lawful proceeding shall transmit to the Provincial Secretary a full statement of the company, & until he does so he may not operate the road; the Provincial Secretary will grant a license to run, & at the first following session of the Legislature application will be made for incorporation or authority to operate the railway, unless incorporation has meantime taken place under the general act.

Fort Erie to Chippawa.—It is impossible to get any information as to what the people who have arranged with the commissioners of the Niagara Falls Park intend to do in connection with the construction of this line. T. C. Frenyear, of Buffalo, who is interested in the scheme, replies to an inquiry that there is nothing to be said on the subject at present. (Jan., pg. 26.)

Grand Valley Ry.—In our last issue it was stated that this Co. was asking for a bonus of \$155,000 from Port Dover. The amount asked is \$15,000, and other towns are asked for the following amounts:—Simcoe, \$10,000; Brantford, \$35,000; Galt, \$10,000; Preston, \$4,000; Berlin & Waterloo, \$30,000. The promoter, J. S. Clark, of Ayr, recently addressed a meeting in Goderich & asked \$30,000 from that town. The meeting endorsed the scheme. The Co. has a bill before the Dominion Parliament to change its name to the Port Dover, Brantford, Berlin & Goderich Ry. Co., with a capital stock of \$4,000,000 & head office at Galt, & empowering the Co. to construct & operate a standard gauge line from Port Dover via Simcoe, Brantford, & Berlin to Goderich; with branches from Berlin to Elora, from Waterloo to Listowel, & from Berlin to Stratford, also with power to operate steamships, etc. (Mar., pg. 91.)

Hamilton, Grimsby & Beamsville Electric Ry.—The conductors & motormen have asked for increased wages. At present they are said to receive 10c. an hour for the 1st year, 11c. for the 2nd, & 12c. for the 3rd. There are 10 men employed on the Co.'s cars just now, but about 20 will be on during summer. Manager Nelles states that the motormen & conductors average \$43.76 a month, & are as well paid as any other electric railway employes.

Hamilton Street Ry.—A night car is being run as an experiment between 11.30 p.m. & 1.30 a.m. Double fares are charged.

A letter has been received by the City Council from J. Patterson announcing the Co.'s desire to make some changes in its system,

To Los Angeles and Southern California.

Every Friday night, at 10.35 p.m., a through Tourist Car for Los Angeles and Southern California leaves the Chicago, Milwaukee & St. Paul Railway Union Passenger Station, Chicago, via Omaha, Colorado Springs and Salt Lake City, for all points in Colorado, Utah, Nevada and California.

In addition to the regular Pullman porter, each car is accompanied by an intelligent, competent and courteous "courier," who will attend to the wants of passengers en route. This is an entirely new feature of tourist car service and will be appreciated by families or by ladies travelling alone. Particular attention is paid to the care of children, who usually get weary on a long journey.

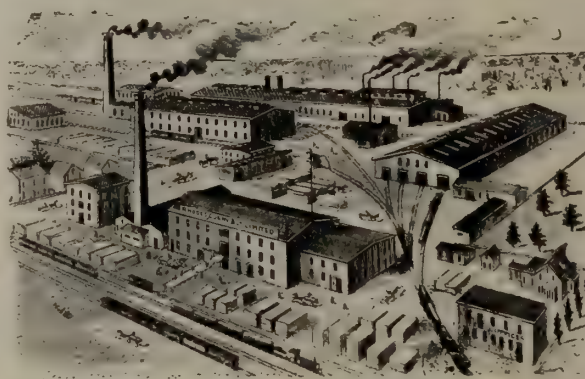
These tourist cars are sleeping cars supplied with all the accessories necessary to make the journey comfortable and pleasant, and the berth rate (each berth will accommodate two persons) is only \$6.00 from Chicago to California. Ask the nearest ticket agent for a tourist car folder, or address A. J. Taylor, Canadian Freight and Passenger Agent, 8 King Street East, Toronto, Ont.

with a possible rearrangement of its mileage & percentage. Mr. Patterson suggests that the rails be removed from Macnab & Hannah streets, & that the city allow therefor a reduction of the mileage charge & percentage to the extent of the tracks taken up. The Co. is also considering the question of a loop line in the southeast portion of the city as well as other matters of importance. The letter suggested that these matters be discussed be-

tween the representatives of the City Council & the Co. as soon as possible, & this will likely be done.

Metropolitan Ry.—The bill introduced in the Ontario Legislature in the interest of this Co., particulars of which were given in our Feb. issue, pg. 57, is being opposed by the Toronto Ry. Co.

In the Exchequer Court at Ottawa Apl. 15 the M.R. Co. moved to have the order of the



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Grand Trunk Elevator, Portland, Me.	1,000,000 "
Export Elevator, Buffalo, N.Y.	1,000,000 "
J. R. Booth Elevator, Depot Harbor, Ontario.	.....	1,000,000 "
Cleveland Elevator Company's Elevator, Cleveland, O.	.....	500,000 "
Eric R. R. Transfer & Chipping House, Chicago, Ill.	.....	100 cars in 10 hrs.
Manchester Ship Canal Co.'s Elevator, Manchester, Eng.	.....	1,500,000 "
Burlington Elevator Co., Peoria, Ill.	.....	500,000 "
Canada Atlantic Railway Elevator, Coteau Landing, Que.	.....	500,000 "
Northern Grain Co., Manitowoc, Wis.	1,350,000 "
Union Elevator, East St. Louis, Ill.	1,100,000 "
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Railway Committee of the Privy Council, permitting the Metropolitan line to be connected with the C.P.R. track, made a rule of the Exchequer Court, so that the Co. could immediately enforce it. The application was opposed on behalf of the city of Toronto on the grounds that the order was ultra vires of the Railway Committee, & secondly, that the jurisdiction of the Exchequer Court being merely concurrent with that of the Superior Courts, the Exchequer Court could not now interfere, the Ontario Superior Court being already seized of the case. Judgment was reserved on both points. (Feb., pg. 57.)

Niagara Falls & Wesley Park Tramway.—The town council of Niagara Falls has passed a by-law granting the Sutherland Construction Co. of New York a franchise to convert this horse-car line into an electric line. The franchise extends the old franchise 14 years, making the life of the new franchise from date 20 years. It gives the Co. exclusive rights over specified streets & 5 months' option on all other streets within the municipality. The clause covering the entrance of trunk electric lines into the town, was amended to suit all parties interested, as follows: That all electric trunk lines, after receiving permission of the Town Council to enter the municipality, can use the tracks of the local company less than one mile, remuneration, failing amicable traffic arrangements, to be settled by arbitration. (Dec., '99, pg. 371.)

The Niagara Falls Park & River Ry. has a considerable force at work rebalasting & renewing ties where necessary.

Port Stanley Electric Street Ry.—The Ontario Legislature has refused to pass a bill to empower this Co. to build a line from Port Stanley via St. Thomas to London. The bill was strongly opposed by the City of London, which owns the London & Port Stanley Ry., now under lease to the L.E. & D.R. Ry. (Feb., pg. 58.)

Preston & Berlin St. Ry.—At a shareholders' meeting at Preston Mar. 20 the following were elected: President, J. Patterson, Hamilton; Vice-President, M. M. Todd; Sec.-Treas., C. R. Hanning, Preston; other directors, F. Clare, Preston; J. Fennel & W. Rose, Berlin. It is said the Co. will build a line this year between Berlin & Preston, connecting at the latter point with the Galt, Preston & Hespeler Electric Ry., thus affording a through line between Berlin & Galt, giving Berlin connection with the C.P.R. at the latter place. (July, '99, pg. 218.)

Toronto Elevated Ry. Co.—S. H. Janes, S. F. McKinnon, L. M. Jones & J. A. Towell are seeking incorporation from the Ontario Legislature under this name to construct & operate a system of elevated railways in Toronto & adjoining municipalities, & in conjunction therewith a system of surface street railways in Toronto & other municipalities within a radius of 30 miles of Toronto. Since the bill was introduced it has been redrawn. The title has been changed to "an act to incorporate the Toronto Rapid Transit Co." & instead of asking for power to construct & operate elevated railways & surface street railways within a radius of 30 miles of the city, as well as in Toronto itself, the promoters now do not seek to go beyond one mile from the city limits. In the first bill power was asked to operate by "either steam or electric power or any other motive power, or partly by steam & partly by electricity." This is now restricted to "by electric power or any other power." Provision is made for the submission to the people of the question of the expediency of operating elevated railways in Toronto. Should the vote be favorable the Co. can operate, subject, however, to such agreement as may be made with the municipality.

Since the above was written the bill has been withdrawn.

Toronto Railway.—Gross Earnings:

	1900	1899	Increase.
Jan.	\$113,793.96	\$95,690.12	\$18,013.84
Feb.	103,954.19	91,860.10	12,094.09
Mar.	117,631.21	103,234.88	14,396.33
	\$335,289.36	\$290,785.10	\$44,504.26

The Co. has declared a dividend of 1% for the quarter ended Mar. 31.

A bill is before the Ontario Legislature to incorporate a company to construct & operate a radial railway system from Toronto through the counties of York, Peel, Halton, Wentworth, Durham & Simcoe. This is in the interest of the Toronto Ry. Co.

Negotiations are in progress for the settlement of a number of matters in dispute between the Co. & the city. Night transfers are to be given, the Manager of the Co. & the City Engineer are to decide on a form for the annual statements, & the Co. is to put on a number of new cars. The over-crowding question is still under discussion.

Toronto Suburban St. Ry.—W. B. Close has resigned from the managership.

It is alleged that the cars are in very poor condition, & the Co. is being urged to provide better accommodation.

The Co. has a bill before the Ontario Legislature, the chief provisions of which legalize agreements between the Co. & the Village of Weston, the Township of York & the Town of Toronto Junction. The bill proposes to change the name to the Toronto Suburban Ry. Co. & allows conductors to eject passengers refusing to pay their fare. The agreement with the Village of Weston allows the construction of a railway on the Weston road. This franchise exists for 20 years. It may be extended for 10 years if the Legislature will legalize the extension. The motive power is to be electricity, & the Council of the village is to be satisfied with the fenders which may be used, & the Co. is to have the right to carry freight, express or mail matter, within or through the village. One provision which is unusual is that the Co. shall pay the village & such engineer as may be employed by the village, & such solicitor as may be employed by the village, for all services given by them for or on behalf of the Co. The agreement with the Township of York gives the right to maintain a railway from the northern limit of Toronto to the eastern limit of Toronto Jct., & provides for it running on the Weston road & Dundas st. to the eastern limit of Etobicoke, crossing the Humber, & northerly along the old toll road leading to Woodbridge. The fares shall not exceed 3c. a mile, the lowest fare being 5c. unless tickets are bought. The agreement with the Town of Toronto Junction is the same as with Toronto Junction.

Electric Lines in Western Canada.

British Columbia Electric Ry. net earnings Apl. 1, 1899 to Jan. 31, 1900, \$173,063, against \$140,975 for corresponding period.

The case of Yates & the City Corporation of Victoria against this Co. was recently heard, the action being for a declaration that the Co. was bound to operate its railway line between the northern limits of the city & Hillside Av. The facts were agreed on, but the Co. contended that the operation of the road entailed a loss, & therefore it was closed up. Judge Drake decided in favor of the Co.

Crow's Nest Pass Electric Light & Power Co.—Application is being made to the B.C. Legislature to incorporate a company under this name. Among its objects are the construction & operation of tramways & electric railways in Kootenay district. Davis, Marshall, & McNeil, Vancouver, solicitors for applicants.

Selkirk Electric Co.—F. Heap, solicitor, Selkirk, gives notice of application to the Manitoba Legislature to incorporate a com-

pany under this name, to construct & operate a railway & telegraph line from Winnipeg to Selkirk.

Electricity or Steam for Branch Lines.

At the Cape May convention of the American Society of Civil Engineers, Col. H. S. Haines proposed the above topic for discussion. In a recent issue of the Proceedings, C. H. Davis treats the topic at great length. Reversing the usual order, some of his conclusions are given prior to the discussion, in order that each step may be followed more readily. The figures & tables may be found to have some errors & in many cases, are only approximate. His conclusions are,—

Steam railroads will, in the near future, handle their suburban & short-distance interurban passenger traffic & mail, express, baggage & light local freight carried in said suburban & interurban passenger trains, by electric motive power; & this, irrespective of whether operating expenses are affected favorably or unfavorably.

Steam railroads will not, in the near future, handle their freight traffic (other than mail, express, baggage & light local freight carried in suburban & interurban passenger trains), & long-distance passenger traffic by any other motive power than steam locomotives.

Steam railroads may, under exceptional conditions of large volume & great density of passenger traffic over comparatively short distances, handle it by electric motive power, but such cases will be infrequent.

New railroad lines, connecting very large centers of population, where frequent service at much higher speeds than can be attained now by steam locomotives on existing lines are conditions of success, will be operated by electric motors.

There are three conditions under which suburban & short-distance interurban traffic will be handled profitably by steam railroads converting to electric traction:

Where units can be light & frequent, & operated over comparatively short distances.

Where gross receipts can be so increased by the change of system & mode of operation as to pay for the increased investment & possible increase in operating expenses.

Where competition of parallel electric roads compels the change, to save what traffic there is, irrespective of how operating expenses are affected.

In the future development of steam railroad systems they will eventually be operated jointly with surface electric railways, either through actual mutual ownership, or by traffic contracts, leases, etc.

The above conclusions are obviously dependent upon what Mr. Prout properly defines as "traffic conditions," & not primarily engineering details or operating expenses—Railroad Gazette.

Port of Spain Electric Ry.—A Montreal despatch says: "Sir Wm. Van Horne & J. Hutchison, of Montreal, B. F. Pearson & C. H. Cahan, of Halifax, & other Canadian capitalists interested in the Demerara Electric Co., have gone into another similar, but larger enterprise. Mr. Cahan, who has spent some months in the south, says that after inspecting the progress of the work in Georgetown he went to Trinidad & obtained an exclusive franchise to operate electric railways & furnish electric light & power to the City of Port of Spain & the suburbs to the distance of 5 miles. The necessary legislation is now about through the Legislature, & operations will begin at once. The capital of the Trinidad company will be \$1,000,000. Mr. Cahan expresses himself as well pleased with the progress of the Demerara Co."

City of Birmingham Tramways Co.—The directors of the City of Birmingham Tram-

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" " \$4,000 " " "	9 00
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- 4.—A Total and Permanent Disability Benefit of one-half of face value of policy, with exemption from further payment of premiums or Court Dues.
- 5.—An Old Age Benefit consisting of exemption from payment of premiums and Court dues after age 70.
- 6.—An Old Age Disability Benefit of one-tenth of face value of policy payable yearly for ten years, on being declared totally and permanently disabled by infirmities of age after the seventieth birthday.
- 7.—An Old Age Pension payable during disability, which may be taken as a substitute for the Old Age Disability Benefit.
- 8.—A Burial Benefit of \$100 at death of a Pensioner.
- 9.—A Funeral Benefit of \$50 at death of a member enrolled in Sick and Funeral Benefit Department.
- 10.—The Mortuary Benefit of \$500, \$1,000, \$2,000, \$3,000 \$4,000 or \$5,000.

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Year.	Total Membership.	Benefits Paid.	Total Surplus.	Surplus per Capita.	Death Rate per 1,000.
1881	1,019	\$ 1,300 00	\$ 4,568 55	\$ 4 48	4.50
1882	1,134	12,058 86	2,967 93	2 61	11.00
1883	2,210	9,493 68	10,857 65	4 91	4.73
1884	2,558	13,914 31	23,081 85	9 01	4.23
1885	3,642	26,576 99	29,802 42	8 18	7.76
1886	5,804	28,499 82	53,981 28	9 30	4.85
1887	7,811	59,014 67	81,384 41	10 44	5.78
1888	11,800	89,018 16	117,821 96	9 98	6.43
1889	17,349	116,787 82	188,130 36	10 84	5.85
1890	24,604	181,846 79	283,967 20	11 54	5.18
1891	32,303	261,436 21	408,798 20	12 65	6.40
1892	43,024	344,748 82	580,597 85	13 49	6.25
1893	54,184	392,185 93	858,857 89	15 76	5.47
1894	70,055	511,162 30	1,187,225 11	16 94	5.47
1895	86,521	685,000 18	1,560,733 46	18 03	5.67
1896	102,838	820,941 91	2,015,484 38	19 60	5.50
1897	124,685	992,225 60	2,558,832 78	20 52	5.56
1898	144,000	1,176,125 14	3,186,370 36	22 12	5.67

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A. E. Stevenson, 6436 Kimbark Ave., Chicago, Ill.

Or Any Officer or Member of the Order.

ways Company, Limited, have issued their report & accounts for the year ended Dec. last. The profit for the year amounted to £68,668 (an increase of £8,772 over 1898), which, with the amount set aside against accrued dividend on the preference shares, makes a total of £70,751. Of this, debenture interest took £12,000, preference dividend £10,000, interim dividend of $2\frac{1}{2}\%$ on ordinary shares £2,104, donation to the Birmingham University fund £500, contribution to employees' sick & provident fund £105, & contribution towards maintenance of families of army reservists £80, leaving an available balance of £45,961. It is now proposed to carry forward £2,083 to meet the dividend on the preference shares accrued since Oct. 15, to pay a further dividend of $2\frac{1}{2}\%$, & a bonus of $2\frac{1}{2}\%$ on the ordinary shares, making $7\frac{1}{2}\%$ for the whole year, & that the balance of £39,668 should be carried forward to reserve (thereby raising the fund to £107,128) to provide for depreciation of assets, redemption of debentures, & for general purposes. W. Mackenzie has ceased to be a director of the Company, & G. Farrer has been elected in his stead. G. C. Cunningham has resigned the Managing Directorship to accept the management of the Central London Ry., but still retains a seat on the board, & J. K. L. Ross has been elected an additional director.

The Metropolitan & District Railway Companies of London, Eng., are about to work experimentally a line between Earl's Court & High St. by electricity. A third-rail is to be used, current being supplied at 500 volts.

General Telegraph Matters.

The government of the Congo Free State has decided to adopt wireless telegraphy for the transmission of official despatches in the Upper Congo region.

A bill is before the House of Commons respecting the Northern Commercial Telegraph Co., Ltd., which was incorporated in 1898, to increase its capital to £500,000.

J. G. Smith, first President of the National Telegraphers' Union, died in New York Mar. 15. He was widely known for his invention, in conjunction with S. B. Stern, of the duplex system of telegraphy.

Some idea of the immense growth of the telegraphic industry during the past half-century can be gathered from the fact that the receipts of the first line for 1846 were \$4,000, whereas to-day the Western Union Co. alone does a business of \$23,000,000 annually, & the Postal Co.'s receipts reach many millions, this representing a business of more than one hundred million messages.

S. S. Dickinson, Superintendent of the Commercial Cable Co. at Canso, N.S., has gone to the Azores to arrange for the reception of the Co.'s German cable, which will land there. This cable will make a direct connection between New York & Germany. Six hundred miles of it have just been completed off the coast of Nova Scotia, & the intention is to now begin paying out the cable from the Island of Fayal, running northwestward until a connection is made with the part already referred to off the N.S. shore.

A number of questions were asked in the House of Commons recently in reference to the telegraph line on the north shore of the St. Lawrence, which were answered by the Postmaster General as follows:—L. P. De Corval has been paid \$37,431.50 in connection with the construction of the line, which leaves nothing owing. The line has been built 231 miles from Pointe aux Esquimaux east, or 60 miles east of Grand Romaine. It is the intention to extend the line to Chateau Bay, 320 miles east of Grand Romaine, & it is expected to complete it in July. P. A. Perron is Inspector of Construction. F. X. Gendreau

has the contract this year for the construction of the line, for which tenders were invited. The price being paid is \$125 a mile.

The C. P. R. Co.'s Telegraph has leased 53 & 55 St. Francois Xavier St., Montreal, for temporary quarters, & the head offices, operating rooms, &c., will be removed there early in May from the building at the corner of St. Francois Xavier & Hospital streets, which has been occupied since the establishment of the department. Duplicate instruments, &c., are now being installed in the temporary premises. A 5 storey building is to replace the present one at the corner of St. Francois Xavier & Hospital, and it is said the Co. is negotiating for the purchase of the Montreal Club building, & should these terminate satisfactorily the new telegraph structure will extend along Hospital St. to the corner of Stock Exchange Court, an extent of frontage which will make the proposed building decidedly imposing.

The G.N.W. Telegraph Co.'s Suit.

The long-pending suit of Morrow et al vs. the G.N.W.T. Co., the Western Union Telegraph Co. & others, was heard at Toronto April 3 & 4 by Judge Meredith. The plaintiff, H. N. Morrow, an accountant in Boston, holds 700 shares of G.N.W. stock, the other plaintiff, W. A. Clark, Jr., being described as a banker in Boston. Plaintiffs sought to set aside an agreement dated Aug. 17, 1881, by which the G.N.W. Co. took over the control of the Montreal Telegraph Co., while the Western Union guaranteed the payments to the M.T. Co.

The following charges were made against the W.U.T. Co.: That it had no power to guarantee payment by the G.N.W.T. Co. of the rental to the M.T. Co., & further to guarantee the performance by the G.N.W. Co. of certain covenants contained in the agreement of 1881. That the W.U. Co. having no power to give the guarantee, is at liberty to withdraw therefrom whenever it may suit its purpose to do so. That the W.U. controlled the G.N.W. at the time of making the agreement, still controls it in every respect, & that such control was & is exercised in a manner prejudicial to the G.N.W. & its shareholders. That the guarantee given by the W.U. is void, as no consideration was received by it. That the charter of the W.U. expires in 1951, & the guarantee continues for 27 years after the expiry of the charter. That the W.U. had no power to acquire any of the stock of the G.N.W. All these points, excepting the question of control, turned, it was contended, upon the law of the State of New York, & were covered by the evidence taken.

The following charges were made against the G.N.W.T. Co.: That it had no power under its act of incorporation to enter into the agreement of Aug. 17, 1881. That the arrangement is so obviously disadvantageous to the G.N.W. that it should be set aside. That a majority of the directors of the G.N.W. are not British subjects. That the G.N.W. had no power under its act of incorporation to place the direction of affairs in the hands of a foreign corporation. That the agreement amounts to an attempted delegation by the G.N.W. to the M.T. Co. of its franchises & powers. That the agreement is a misuse & abuse of the statutory powers & franchises. That the act of incorporation of the G.N.W. did not authorize such a dealing with its franchises & powers as in effect a sale, surrender or delivery up of the same. That the sublease of the lines of the Dominion Telegraph Co. was never brought before a meeting of the shareholders of the G.N.W. That the bonded debt of the D.T. Co. (\$285,000) was assumed by the G.N.W. without the knowledge of the shareholders. That the G.N.W. had no power under its charter to enter into an agree-

ment with the W.U. Co. whereby the latter Co. could acquire an interest in the lines of the G.N.W. or obtain the management or control of the G.N.W. That the G.N.W. had no power to sell or dispose of its stock or any portion of it to the W.U. Co. or to sell or dispose of any interest in its lines to the W.U. Co., or to have any dealings, other than an agreement by which connection might be made, between the lines of the companies. That the agreements are against public policy.

The defendants not only answered more or less directly the allegations of plaintiff, but replied as follows to the statement of claim: Apart from the guarantee given by the W.U. Co., the agreement of Aug. 17, 1881, is supportable & is valid & binding as regards the G.N.W. & the M.T. companies. The plaintiffs, not being stockholders in the W.U. Co. have no status to attack the agreement so far as the W.U. Co. is concerned. If the fact is that the G.N.W. is now largely indebted to the W.U. Co., this is due to the action of the shareholders of the G.N.W. Co. in receiving the large dividends paid by that Co. (The plaintiffs deny the truth of this statement, & say that the amount of the dividends was only \$325,000. The indebtedness to the W.U. Co. amounts to over \$700,000.) Even if the agreement of Aug. 17, 1881, is not strictly within the powers of the parties, the court cannot now interfere, as the parties cannot be restored to their original positions. As a condition precedent to the setting aside of the agreement, the plaintiffs should repay the benefits received by them under it. The plaintiffs are estopped by their own action & by the action of their predecessors in title from attacking the agreement, & also by their delay & acquiescence. The shares held by the plaintiff Morrow were voted on in favor of the agreement; they are tainted by that action, & cannot be used as a basis of an attack upon the agreement. It is also claimed by the defendants that it is a question whether a shareholder can ask the assistance of the court to set aside an agreement entered into by the company in which he holds stock, unless that agreement is either fraudulent or ultra vires of the company in the very strictest sense of the term; also that there is doubt as to whether as a matter of comity a Canadian court will adjudicate upon the powers of a New York company to enter into an agreement where this question must be wholly dealt with & decided upon the interpretation of New York statutes & the application of New York law, & where the position is one which clearly a New York court would not be compelled to pay attention to.

Very little evidence was taken & after the argument of counsel, the Judge dismissed the action with costs on ground of acquiescence & delay of plaintiffs, the question of the validity of contract not being considered. Thirty days' stay was granted.

General Telephone Matters.

The Bell Telephone Co. has declared a dividend of 2% payable in April 17.

A. T. Smith, District Superintendent of the Bell Co. for Western Ontario, has removed his headquarters from Kingston to Toronto.

J. Wilson, Superintendent of the Pacific division of the C.P.R. Co.'s telegraphs, has charge of the work of converting the Nicola telegraph line into a telephone line.

The Bell Co. will build another story to its Winnipeg exchange, & will install a new exchange system. The Co. expended a considerable amount in Winnipeg last year, & will do the same again this year.

Harvey & McCarter, solicitors, give notice of application to the B.C. Legislature to incorporate a company to construct & operate telephone lines, electrical works, power

houses, generating plant, etc., in East Kootenay district.

The City Engineer of Toronto has reported in regard to the application of the London & Berlin Banking Corporation for a telephone franchise, that he considers the proposition a good one, and if the Co. is in a position to commence operations he thinks it might be considered.

W. J. Gilmour, who for the past ten years has been Manager of the Brockville exchange of the Bell Co., & Superintendent of district no. 6, has been appointed Superintendent of Agencies in the eastern department at Montreal, the district including the territory east of Kingston, Ont., & the whole province of Quebec. He is succeeded at Brockville by W. V. B. Earle, of Lachute.

Among the Express Companies.

The Western Ex. Co. has opened a route on the Minneapolis, St. Paul & Ste. Marie Ry., between Rapid River & Trenary, Mich.

The Dominion Ex. Co. has opened offices at Chilliwack, B.C., Cross Lake, Man., Raith, Man., Sifton Jct., Man., Wood Bay, Man., & Snelgrove, Ont.

The Dominion Ex. Co. has extended its service to the extension of the Columbia & Western Ry., between West Robson & Greenwood, B.C., with the following way-bill offices: Cascade, Coryell, Eholt, Grand Forks, Greenwood.

The Dominion Ex. Co. has closed its route on the Newfoundland Steamship line. Routes have been re-opened for the navigation season on the Northern Navigation Co.,

the Lakeside Navigation Co., & the Deseronto Navigation Co.'s boats.

The Canadian Ex. Co. has opened offices at Aston Jct., Que., Caplin, Que., Drew, Ont., Notre Dame, N.B., St. Michel, Que. The following offices have been closed:—Erin, Ont., Sidney, Ont., Whitebread, Ont., Causapscal, Que., Eel River, N.B.

A Victoria, B.C., despatch of Mar. 21, says:—"E. C. Allen, founder of The Dawson Nugget Express, has assigned all his personal property for the benefit of his creditors & left the Yukon country. It is intimated he defrauded the public out of large sums through the express money order department of his business."

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Exit.	Boarding House.
Fire Escape.	Private Board.
Lavatory.	Dressmaking.
Ladies.	Fresh to Day.
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Gentlemen.	Please Shut the Gate.

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Perpendicular, square ends, size 12 x 3 inches, white ground, blue letters, lined & tipped, lettered perpendicularly, **Push, Pull**.

Oblong, square ends, size 12 x 3 inches, white ground, blue letters, lined and tipped, lettered horizontally, **Push, Pull**.

Oblong, fancy ends, size 3 x 1½ inches, white ground, blue letters, lined and tipped, lettered **Push, Pull**.

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Air Brakes & Fittings Westinghouse Mfg. Co. Hamilton, Ont.	Half Tones Acton Burrows Co. Toronto.	Shovels James Cooper. Montreal. The Fairbanks Co. Montreal. The Hudson's Bay Company. Rice Lewis & Son. Toronto.
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G.T.R. SEMI-ANNUAL MEETING.

In our last issue we gave the report presented at the shareholders' meeting in London, England, Apl. 5, & also a brief cable summary of the remarks made by President Sir C. Rivers Wilson in moving its adoption. The following complete report of his speech has since been received by mail:

He said: We will take, I presume, the report & accounts as read. Well, the year 1899 was extremely favorable to the railways of Canada & in the U.S., & the G.T.R., I am happy to say, had an ample participation in the general prosperity. Our gross receipts were within a fraction of £400,000 in excess of the preceding year. We are in a position to distribute dividends upon a large portion of your capital which for many years has been entirely unproductive, & finally, we have had the opportunity afforded us, of which we have freely, but not in any exaggerated form, availed ourselves, of introducing many improvements into our lines which will have the effect of enabling us to meet the requirements of the increasing traffic & to hold out against the powerful competition which we have always had to encounter. The report & accounts which you have before you, & which we have to deal with to-day, give a satisfactory record of profit & of progress. The record is a total gross revenue in the ½-year of £2,423,798, which is the largest revenue ever received in any one ½-year in the history of the Co. Proceeding to details, I will first mention that there has been a falling off in the number of passengers conveyed during the ½-year, but that is a very natural consequence of the cessation of the rate war in the preceding year, when passengers were conveyed at an inadequate rate. On the other hand, the other result, & the more satisfactory result, of the cessation of that most unsatisfactory state of things for which we were never responsible, was an accretion of revenue under the head of passengers of £103,820. Freight & live stock traffic shows the large increase of 666,322 tons, & the gross earnings under that head were £172,961, in excess of those of the corresponding ½-year. The average rate per ton shows a slight diminution, & the average rate received per ton per mile was lower by about 9%. The mails & express business produced £5,649, & the miscellaneous receipts £789 more, so that there was an increase in every item of the receipts, amounting in the aggregate to the substantial sum of £283,219. The working expenses, including taxes, amounted to £1,594,750, & were £166,750 in excess of those of the ½-year ending Dec. 31, 1898. The maintenance of way charges include in both ½-years

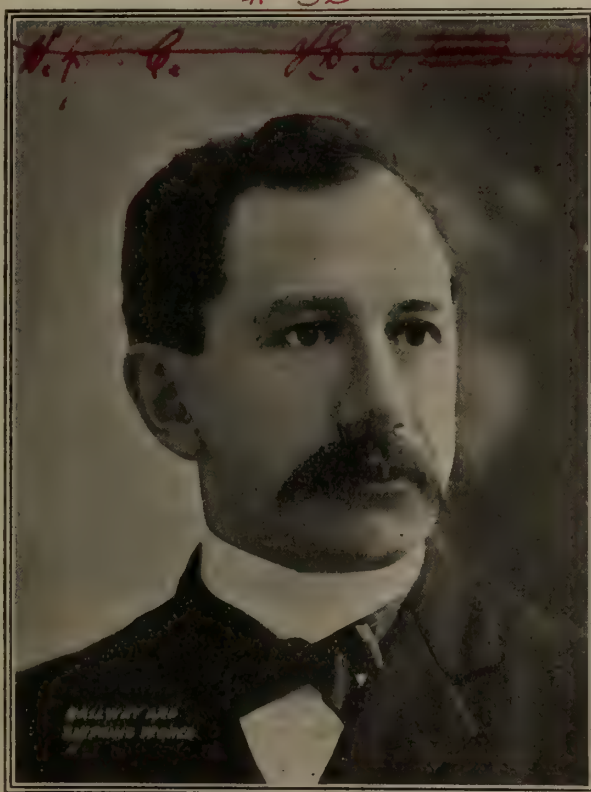
an amount of £30,805 on account of the renewal of bridges on the basis approved some time ago, but in addition to that charge an additional amount of £20,000 has been included in the past ½-year's working expenses, & carried to the credit of renewal of bridges surplus account, which now amounts to £46,754. It will be remembered that when the condition of the revenue was not so favorable as it fortunately is now, it was determined that the amount chargeable to revenue for the reconstruction of the Victoria Jubilee bridge, which, by the way, is now entirely opened & satisfac-

penditures on capital account have to be incurred—not entirely on capital account, but where large expenditures have to be incurred which it is desirable to spread over several years & therefore, I think, under these exceptional circumstances, the creation of suspense accounts is not a thing to be put on one side, & in this case, in view of the fact that our revenue is showing a very substantial increase, we have thought it wise in the past ½-year to set aside specially a sum of £20,000 out of revenue in aid of this suspense account. The consequence will be that I hope we shall be able to abridge the term of 5 years which was recently indicated as the time over which those payments were to last.

I may just mention that there has been some delay in the completion of the bridges on the Portland—that very important division of ours—in consequence of the difficulty of obtaining material, but we are assured by the contractors that the work will be completed in the course of the present autumn, & therefore for the Portland season—the winter season which is the most important, for that portion of our line. The line will be able to bear the very heaviest engines & the very heaviest train loads which may pass over it. The Chief Engineer reports that the masonry of the new general offices at Montreal has been built to a height of about 8 ft. above the street level; & as stated in the directors' report, an amount of £17,465 15s. 1d. on account of the expenditure has been included in the working expenses of the past ½-year. Here again there has been some delay in consequence of the great rise in prices & the consequent inability of the contractors to provide the material for completing the work rapidly.

The maintenance & equipment charges have been considerably in excess of those for the corresponding ½-year, caused partly by the larger train mileage run—about 558,000 increased train mileage—but chiefly in consequence of the rolling stock having been renewed on a more liberal scale, & including the necessary provision for the replacement of the cars out of service. Nineteen engines have

been built or purchased during the ½-year at the expense of revenue, partly through the operation of the renewal fund, & there remains at the credit of that fund on Dec. 31, £21,291 applicable to future locomotive renewal requirements. I will just say one word about the car department, & one of the most regrettable circumstances connected with the enormous increase of business which accrued to all the railways on the American continent during the late summer & autumn was the fact that there was an insufficiency of cars in the case of almost every one of the railways to meet the requirements of the enormous traffic



PETER W. RESSEMAN,

General Superintendent & General Freight & Passenger Agent, Pontiac
Pacific Jct. Ry., & Ottawa & Gatineau Ry.

torily completed, & the entire cost of replacing several bridges on our line, which were inadequate for the heavy loads now required to pass over them by others of a greater bearing capacity, should be spread over a period of 5 years at the rate of about £46,000 per annum, of which one-third has been charged in the first, & two-thirds in the second half of each year. I am bound to admit that this system of creating suspense accounts does not altogether commend itself to my judgment, but at the same time there are exceptional cases such as that which I have just mentioned, bridge renewals where large ex-

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NEXT ANNUAL MEETING at Montreal, Oct. 16, 1900.

which was presented to them, & to use the
expression that is used in America, there was
almost a universal car famine, & during a
great portion of the autumn, we, the G.T.R.,
were between 2,500 & 3,000 cars short of the
necessary amount to enable us to carry the
enormous quantity of traffic which was pre-
sented to us. The consequence was that the
rise in the price of material for the construc-
tion of cars was very considerable, & our car
department, acting very prudently, I think I
may say, rather delayed pushing forward the
work which they would have undertaken at a
very great additional expense. We were in
the course of constructing 500 new box cars,
& during the ½-year it was only possible to
complete 250 out of the 500, together with a
certain number of passenger & baggage cars,
but since then, I am happy to say, the whole
of the 500 have been added to our stock.

In the expenditure under the head of "Con-
ducting Transportation" the largest increase
is £20,000, in the item of fuel consumed by lo-
comotives, but this is accounted for by an in-
crease of engine mileage & an increase of 22.8
% in the tons hauled 1 mile. I am afraid our
coal bill, which is one of the most serious
items of our expenditure, is likely to increase
rather than diminish. To give you some idea
of the great extent of our operations, the
amount of fuel consumed upon the G.T.R. last
year was 975,000 tons of fuel. Of that 940,-
000 tons were consumed in the locomotive
department alone—I am speaking of the whole
year—at an expense of something over £400,-
000. There has been also some increase in
wages in consequence of the not unreasonable
demands of certain classes of our operators.

The charges to capital account in the ½-
year, less credits, amount to £92,110. The
new roundhouse at Sarnia has been completed,
& will be of great advantage in avoiding the
delay hitherto caused by the engines having
to be run from Sarnia to Point Edward. The
saving expected, which will be effected by
the new arrangement in wages alone, is es-
timated to amount to \$5,000 a year. It was
mentioned at the last general meeting that
the board had authorized the General Manager
to proceed with the laying of about 10 miles
of additional double track in sections at var-
ious portions of the line where the increased
accommodation would be most advantageous.
The work has now been completed with the
exception of some bridge work, which has
been delayed owing to the difficulty of obtain-
ing delivery of the necessary material, but is
now being provided, & during the current ½-
year these bridges it is expected will be fin-
ished, when there will only remain 45 miles of
single track between Toronto & Montreal, a
distance of 333 miles. That work will be
taken in hand as soon as possible, but it will
be somewhat of a costly nature owing to the
fact that the gradients are very heavy at those
particular points, & there are also very serious
curves. There are other portions of our line
where we intend to push forward with all
necessary speed the double tracking of our
line, especially between Niagara Falls & Ham-
ilton, a distance of 43½ miles, the double
tracking of which the General Manager ad-
vises could be accomplished without difficulty
owing to the nature of the ground, & sur-
veys & specifications have already been pre-
pared, & we intend to enter upon that work
as soon as we possibly can. The capital ac-
count has also been charged with £27,163 in

respect of the equipment of engines & freight
cars with safety appliances in conformity with
the provisions of the U.S. Act. The period
for complying with the statute has been fur-
ther extended to Aug. 1, 1900, by which date
it is expected the furnishing of sufficient of
our rolling stock with air brakes & automatic
coupling appliances, to meet the requirements
of the Act, will be completed. The growth of
the business requiring to be handled through
the Co.'s terminals at Montreal has necessi-
tated the purchase of some additional land in
the immediate vicinity of our Bonaventure sta-
tion. Of course land in that vicinity is nat-
urally rather expensive, but it was absolutely
necessary for the handling of our freight traf-
fic that we should have some additional ac-
commodation, & an amount of £41,189 has
been charged in the last ½-year's accounts
for land purchased, & some further expendi-
ture on that account will have to be incurred,
as well as for the laying of additional tracks,
& the construction of the freight house, which
will be necessary for the improvement of the
business of the company.

The results of the ½-year's operations com-
pared with the corresponding period of 1898
were as follows:—The gross receipts amounted
to £2,423,798, against £2,140,580, being an
increase of £283,218. The working expenses
were £1,594,750, as compared with £1,428,-
000, an increase of £166,750. The net traffic
receipts were therefore £829,048, as against
£712,580, being an increase of £116,468.
The net revenue charges, less credits, were
£4,467 more, & the advances to controlled
lines under agreements were £4,266 less than
in 1898, & the net result of the ½-year's work-
ing amounted to £385,108, against £208,841,
an improvement of £176,267. We are there-
fore in a position to-day to recommend to
you the payment of some substantial divi-
dends, & we propose to recommend for your
approval the payment of the 2% for the ½-
year on the guaranteed stock, which makes,
with the 2%, paid in the previous ½-year,
4% for the entire year. We recommend
you to sanction the payment of 4% upon
the first preferences, which added to the 1%
paid in the previous ½-year makes a total of
5%; & we further recommend to you the pay-
ment of 3¼% upon the 2nd preference stock.
I will just remark that this is the first time
that a full dividend has been paid on the 1st
preference stock since 1887, while the 2nd
preference has received no dividend at all
since 1887, & then they received only a divi-
dend of 6s. 8d. It will be observed that there
has been introduced into the report on this
occasion a table showing the revenues of the
G.T. Co. for the past 8 years, which are very
interesting & instructive. In the first 4 years,
from 1892 to 1895 inclusive, the gross receipts
amounted to £15,378,094, & the working ex-
penses to £11,093,762, being at the rate of
72.14%, whereas in the last period of 4 years,
from 1896 to 1899 inclusive, under the present
management, the gross receipts were £16,-
242,119, & the working expenses were £10,-
909,991, or 67.17%, showing a saving, com-
pared with the previous 4 years, of 4.97%
—very nearly 5% which on the gross receipts
of the 4 years, 1896 to 1899, would amount to
£807,233. These figures, I think, require no
comment, but they speak volumes for the abil-
ity & energy of Mr. Hays & of the staff that
works the line.

Now, I do not wish to throw cold water
upon the present friendly meeting, but at the
same time I must give you one caution against
indulging in a too exaggerated opinion of the
future, based upon the figures which I have
just laid before you. There must be limits to
economy in working; there is no limit to the
antagonistic influences with which we have to
contend. We may necessarily expect com-
mercial disturbances & financial disturbances
& a series of bad harvests which may affect
our revenue; but even if our revenue continues

to increase, as I trust it may do, & as I think in the immediate future there is every prospect that it will, I say that even in those circumstances you must remember that an increase brings with it additional higher prices for material & higher claims for wages, while there is one thing that does not rise, & that is the rates. And upon that subject I have spoken to you upon more than one occasion, & if I now address a few words to you on the subject, it is because I think it is the duty of those who are responsible for the management of this great corporation to add their voice of complaint & expostulation to the chorus which has been raised by all of the railway companies on the continent on the other side against the unfortunate existing state of things, which is very much owing, if I may venture to say so respectfully, to the neglect which the interests of the great American railways have received at the hands of Congress. Now, like all the great railway companies, we have been suffering very severely of late from the great increase of prices—the enormous rise in the prices of all articles & materials required in the maintenance & equipment of our lines. It has been calculated that during 1899 the cost of maintaining a first-class railway in its normal condition has been \$300 a mile in excess of what was required during 1898. To descend from generalities to particulars, I will mention the case of engines. The market price of engines, which 2 years ago was from \$11,500 to \$12,000, is to-day \$16,000, & the same causes which produced this increase affect the cost of material purchased for use in our own shops. A similar remark applies to the material for car construction & also for steel rails. I must just mention that by good fortune, & I may say some little foresight on the part of your directors & the management, we were able to secure contracts for the delivery of a very large quantity of 80-lb. steel rails, in anticipation of our future wants, in excess, no doubt, of the price that we paid in the previous year, but very considerably less than the market prices. In the same way we purchased from the Baldwin Locomotive Works for delivery last Nov., 10 heavy engines for \$12,500 each, whereas had we delayed our order we should have had to pay \$15,000, & we should not have obtained delivery until Mar., 1900, which would have caused us the greatest possible inconvenience. We cannot always expect to make such good bargains as that, nor to be always beforehand with the market, & I only mention to you these circumstances as indicating the great difficulties we have to contend with owing to the great rise in the prices of all material; but the most serious factor against which the management has to contend is that of inadequate & especially of fluctuating rates for the carriage of freight. Prices may not always remain at their present high level, & some alleviation may be obtained in this respect, but there seems no indication of better rates. In 1883 Sir Henry Tyler, in one of his interesting addresses to the proprietary, deplored the fact that rates had fallen to 30c. per 100 lbs. for grain from Chicago to New York, & he said that never, except in a time of intense competition, had the G.T. worked at so low a winter rate. The rate this winter has been 13c. for grain for export & 15c. for grain for domestic consumption from Chicago to New York, & we are expected to congratulate ourselves because the rate on both classes was to be put back to 15c. from the 1st. of this month. That has been done. Yet, there is something even worse than low rates, & that is unstable rates, & the uncertainty of maintaining them at the published tariff, whatever they may be. The question is constantly and not unreasonably asked, "How is it that these great railway corporations, so rich & so powerful, are not able to maintain rates?" & I assure you that is a question that I have always found it very difficult to answer. You would have

thought that with great systems, say, for instance, the Pennsylvania & the great Vanderbilt interest—these great corporations controlling, as they do, many of the lesser lines—you would have thought that the influence of great, rich & powerful financiers of New York, & their enormous interest in keeping rates steady, you would have thought that the interests of the public—and it is calculated that about one-fifth of the wealth of the U.S. is invested in railway securities—you would have thought that all these great interests would have been powerful enough to insist that rates should be maintained; but apparently they have not been able to do anything of the sort. During this late car famine, of which I spoke to you when there was absolutely an insufficiency of equipment to convey the traffic which was being forced into our railway stations, you would have thought that railways would have been masters of the situation, & that rates would have risen. Nothing of the sort; they remained as low as ever. The only answer to this vexed problem appears to be that the big shippers are more powerful than all these things that I have mentioned, & they are strong enough & wealthy enough & powerful enough to impose their will upon the railways. This most disastrous state of things—because not only does it affect the railways most injuriously, which railways are thus obliged to earn their money under the yokes of these people, & I am told that many of these people have never been known to pay the full tariff rate—this not only has an effect upon the railways, but a great public evil is caused—a great public & great economic evil is caused—by the action of those people, & by the unfortunate weakness of these railway companies in concurring in this state of things; & that is that the small shipper, the weak shipper, the struggling shipper, is obliterated. But I will not dwell upon that, because it is, perhaps, rather outside the purview of our own particular question; but I will mention that the Interstate Commerce Commission, who were originally appointed rather especially with a view of controlling & restraining the railways—they are loud in their denunciation of the present state of things, & they have reported to Congress only last year, that the situation was deplorable, & that the present law is inadequate to deal with it. You will remember that the Anti-trust Law of the U.S. prohibits railways from combining, or, at any rate, it restricts the courts from enforcing any contracts made between the companies & as has been truly said, all the world may combine against the railways, but the railroads may not combine for their own protection. Employes may combine against railroads to get more wages, but the companies may not combine to maintain reasonable rates. I must add one other reference to the weighty reports of the Interstate Commerce Commission which I just alluded to. They state their opinion that the "Government must in some form assume such a measure of control over railway rates & management as will restrict excessive competition, & ensure to all shippers, large & small, rich & poor, strong & weak, the same rights & privileges in everything pertaining to railway service," & they add, "every consideration of private justice & public welfare demands that railway rates should be reasonable & uniform to all shippers & equitable between all communities, & until needful legislation is supplied that demand must remain unsatisfied." The remedy proposed by the railways is that pooling shall be legalized, & also the contracts entered into among the railways for carrying out such a system as that should be recognized & enforced in the courts—in short, what might be called "legalized co-operation." All we can do is to speak loudly in that sense, as all the other railways are doing on the other side of the Atlantic, in the hope that our views may be heard by Congress, & that some legislation

may be carried into effect in the sense I have just indicated to you.

The working of the Chicago & G.T.R. has not been very satisfactory for the past ½-year. There has been a very considerable increase in the gross receipts, a large increase in the tonnage of freight; but unfortunately the expenses have also increased in a still larger ratio, & the consequence is that the deficiency is increased, I think, by £4,703. On the other hand, I am happy to say that the Detroit, Grand Haven & Milwaukee Ry. shows a much more satisfactory result, & for the first time since 1891, the ½-year's working has absolutely been able to show a surplus, a surplus of £5,088. The Central Vermont, of which so many deplorable accounts have been related in this room, I am happy to tell you is working most satisfactorily. After the reorganization of that Co., in which we took so large a part, as you will remember, we always expected that as soon as the line became disentangled from the loose, free, & easy management which had controlled it, we always anticipated very satisfactory results from putting the line under better management; but the results, under the able management of Mr. FitzHugh, & under the control of Mr. Hays, have surpassed all our expectations; & the consequence has been, as I think it is stated in the report, that the working for the 8 months ending Dec. 31 shows a very substantial surplus over the fixed charges. This result is a result most creditable to our officers, & as I said before, it goes beyond what we certainly ever could have hoped for.

There is one item of expenditure which I should like to mention to you—it is alluded to in the report—and which, I think, will have your approval. The people of this country, & not least of all, the shareholders of the G.T.R. whose fortunes & interests are so clearly identified with those of the Dominion of Canada, have applauded & admired the noble & patriotic attitude of Canada in these recent times. And when the other day a patriotic fund was formed in Canada for the relief & for the advantage of the gallant Canadians who are fighting the battles of the Empire in South Africa many thousand miles from their own country, & for their families during their absence, we felt that it was our duty—and we also felt that we should have the cordial approval of our proprietors if we added our contributions in these prosperous times in which we are placed to that most excellent fund. We judged that we should have your approval & we contributed a sum of \$15,000 to this fund, & I am happy to say that our example was promptly followed by the C.P.R. Co.

I now come to a matter somewhat more complex & somewhat more troublesome than those matters with which I have already troubled you. I must say a few words upon the position, especially upon the financial position, of the Chicago & G.T.Ry., & I am very glad in having the opportunity of giving some information or explanation to those persons who, I venture to think, are persons who are imperfectly acquainted with the real state of affairs. You must please bear in mind three things in considering the position of the Chicago & G.T.Ry. In the first place, that Co. has a very heavy floating debt which it has no power to liquidate, no means to liquidate. In the second place, the Chicago & G.T.Ry. is unable to earn under present conditions even its fixed charges; & in the third place, it is absolutely indispensable—if the Chicago & G.T. is to maintain a position of any sort in competition with the other railways out of Chicago—it is absolutely indispensable that a very large sum, should be spent upon double-tracking the line, improving the line & improving its equipment. Those are three points which I must beg you to bear in mind in considering this question. Now, as regards indebtedness. The Chicago & G.T. at present is under indebtedness to the G.T. Co. of

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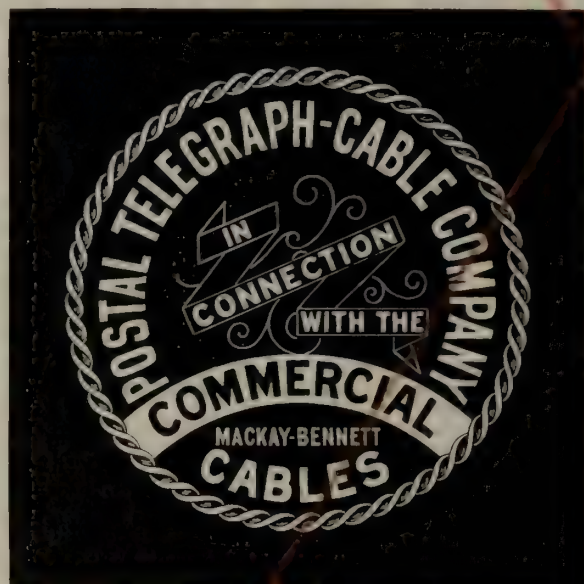
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Sole Agents for Canada for The Imperial Enamel Co. of Birmingham, England.

no less than £1,359,424. As regards the earning capacity of the line, you are aware that when the bond capital of the Chicago & G.T. Co. was originally issued, traffic agreements were entered into by which the G.T. Co. undertook to supplement, out of a percentage of its earnings of traffic interchanged between the two companies the net revenue of the Chicago & G.T. to such an extent as might be necessary to meet the full interest on the bonds. This arrangement has borne heavily on the G.T. revenue for many years past. I will, by way of illustration, give you the figures for the past 6 years. The net earnings of the Chicago & G.T. Co. amounted for the 6 years, from 1894 to 1899 inclusive, to £438,832, from which had to be disbursed for rentals & interest on borrowed money £263,326, leaving a net amount available for bond interest for the 6 years of £175,506, an average of £29,251 a year. Inasmuch as the interests on the C. & G.T. 1st mortgage bonds amounted to \$360,000 & on the 2nd mortgage bonds to \$300,000—in all \$660,000 a year, a total of £813,700 for the 6 years, it follows that the C. & G.T. net revenue for that period was short of the bond interest requirements by £638,194, of which £571,488 had to be provided by the G.T. Co., & the terms of the traffic agreements, & the remainder by way of additional advances to the C. & G.T. Co. These obligations have made a serious inroad on the G.T. revenue resources, & by way of further emphasizing this fact, I wish to point out to you that when the 2½ years, from Jan. 1, 1894, to June 30, 1896, when the G.T. fortunes were at their lowest ebb—in those dark & depressing days of the fortunes of the G.T. Co. our Co. accumulated a revenue deficiency of £306,000—we were unable to meet our fixed charges to that amount; & in that same period the G.T. Co., in terms of the traffic agreements, contributed from its revenue by way of advances to the C. & G.T. Co. to meet its bond interest no less than £325,000. It may be said, it has been said, that the G.T. earnings are increased by the traffic interchanged between the two companies which it might not otherwise obtain; & this is, of course, true to a certain extent; but it must be borne in mind that the G.T. could always control a large proportion of the traffic, & that the net profit made by the G.T. Co. on the traffic—to a large extent through business which it receives from its connection with the C. & G.T. taking into consideration the low rates that have ruled for a long time past, has been commensurate with its obligations under the traffic agreements. You will see therefore, that whilst we were absolutely in a state of quasi-insolvency we were bound under this agreement, this unfortunate agreement, I might almost call it, bound to pay out money in order to maintain the credit of the C. & G.T. bonds, at a time when we were not earning interest to pay your bonds. As the traffic agreement in connection with the C. & G.T. 1st mortgage bonds due Jan. 1, 1900, terminated at that date, it was necessary for that Co. to review the position of its affairs in regard to the maturity of that portion of its bond capital, the arrangement of its floating debt, & the raising of fresh capital absolutely necessary for the purpose of improving the physical condition of the line so as to enable the Co. to maintain its earnings in competition with other lines which had already expended large sums in providing for their similar requirements. No fresh capital has been raised by the C. & G.T. Co. since the issue in 1882 of the 2nd mortgage bonds owing to the conditions of that mortgage, which provided that no larger amount than the then existing 1st mortgage of \$6,000,000 be raised in priority to the 2nd mortgage, & the outlay absolutely necessary for the C. & G.T. requirements on that account had, from 1882 to 1895, been advanced by the G.T. Co. out of its resources, & that Co. also advanced during that period

large sums for supplying the C. & G.T. with rolling stock, stores, &c. Since the present board took office the directors have not considered it desirable to increase these advances, nor are they prepared to advise you to use the resources of the G.T. Co. for the purpose of meeting the further capital now so urgently required. In these circumstances the C. & G.T. Co. in Oct. last issued a circular addressed to the holders of the 1st & 2nd mortgage bonds containing a scheme for the reorganization of the Co. which, on the existing condition of its affairs, must be considered a fair & equitable arrangement for all parties interested, & one which, when carried into effect, would place the Co. in a sound position. The object, the chief object, of that scheme is to make the C. & G.T. Co. self-supporting, & at the same time, to enable it to do that, to provide a large sum of money for the absolutely necessary improvement of the line. In the scheme propounded by the C. & G.T. board the bond issue is to be restricted to \$15,000,000 bearing 4% interest. That amount includes rolling stock, putting the line into a satisfactory condition to work the traffic at the lowest possible cost, which, doubtless, will have the effect of materially increasing the earning capacity, & in order that the new 4% bonds may become a perfectly sound & first-class investment, & the regular payment of the interest sure, the G.T. Co. propose, if the scheme goes through, to enter into a new traffic agreement by which these objects will be secured. And now I wish to say a few words to the 1st and 2nd mortgage bondholders of the C. & G.T.R. It is possible that some of them may be present here to-day, but no doubt my words may go beyond this room. The scheme put forth by the C. & G.T.R. has received the assent of somewhat over two-thirds of the 1st mortgage bondholders, but a certain number have expressed their dissent, & another portion, making up the total outstanding one-third, a certain portion appear to be in a condition of hesitation, & have not pronounced assent. I should like to point out to those gentlemen who have dissented that those holders who have dissented & those holders who are still hesitating are in my judgment acting very unwisely. They are offered in exchange for their old bonds a new bond, which I venture to say will in a very short time after the scheme of reorganization is gone through, occupy a very high position indeed in the market, & I venture to think that if those persons whom I am alluding to had been well advised, or if they had studied the situation a little more accurately they would have seen that they were acting contrary to their best interests by refusing the offer which was made to them. I am assured that the certificates—that the market price at the present moment of Glynn's certificates, which have been issued to the bondholders who have deposited—I am assured that there is a quotation for these certificates in the market between 98 & 99 at the present time. I am also assured, upon very high authority, that if it had not been for the short-sighted opposition of those holders to whom I have just alluded, there is very little doubt whatsoever that these certificates at the present moment would command a much higher price—probably considerably & substantially above par. And what more could these holders have expected to receive—100 for £100 bond in the circumstances I mentioned to you? They would have received something more than 100 for their £100 bond; therefore I hope it is not even too late now. I hope my words will go forth. I have no other interest to serve, not only for our own Co. but for this C. & G.T. & the holders in whom we are interested. I think they will act most wisely if they join in the scheme, for it seems to me the height of unwisdom that they should allow themselves to be persuaded that this scheme was not for their advantage. Just think for a

moment what this bond is. This is a 4% bond, a 1st mortgage bond upon this railway which after it has been put into good order—as we intend it shall be—will have a very high earning capacity indeed. It is a substantial interest guaranteed by the traffic agreement proposed to be entered into by the G.T. In point of fact I may say that that guarantee takes the form almost substantially of a prior charge because it is payable out of the gross earnings of the interchange traffic. And this bond, this gold bond, is a 50 years' bond, running for 50 years, & better very much in that respect than the old 21 year bond. I cannot conceive in the present condition of things that there is a finer or more promising bond than this, & I would say also, as I mentioned just now when I spoke in the interest of the C. & G.T. holders—which I do most sincerely—that you must remember that we of the G.T. are far & away the largest holders of these bonds, & I shall congratulate the board & shall congratulate all of you proprietors, if this scheme goes through, as I have no doubt it will go through. It will be much to our advantage, & if it is to our advantage, it is to the advantage of all the other holders of these bonds. I will say the same thing to the 2nd mortgage bondholders. The 2nd mortgage bondholders are grumbling & complaining. They think that fair treatment has not been awarded to them. What do the 1st mortgage bondholders say? They complain that we are treating the 2nd mortgage bondholders too liberally, because, forsooth, they are admitted to 1st mortgage, whereas, hitherto, they have only had a 2nd mortgage. Therefore, I think I may set one set of bondholders against the other, & leave them to fight the thing out themselves. But I go back to the more important thing of what I said just now, namely, that this bond is a most valuable bond, as you will be able to see in the future, & all you gentlemen who have had opportunities of securing those bonds, & have not availed yourselves of that opportunity, will bitterly regret it some of these days. I will pass from that subject, & I hope my words will have some effect & induce friendly co-operation amongst all classes of bondholders, so that our scheme will go rapidly through without any impediment.

There is only one other matter, which is of a totally different order, which I must allude to, & that relates entirely to the G.T. Co. I am sorry to have to announce to you that our General Traffic Manager, Mr. Reeve, after a long, & successful & faithful service of 40 years, is about to retire from our service—he will retire on May 1 next. It is a matter of the most sincere regret to us that he is leaving us, because his services are quite of an exceptional character. He is a man who has been devoted to our interest for very many years. He has brought intelligence of a high order to bear & the result of his work has been most valuable & most useful to the interests of this Co. I think it is only due to him & it will be only interesting to you, that I should read to you the words of Mr. Hays in announcing to us the most regrettable circumstances of Mr. Reeve's retirement. He writes this:—"Mr. Reeve has filled the position of telegraph operator, agent, train despatcher, soliciting for freight agent, division freight, general traffic manager, & finally traffic manager, in which position he has performed the duties of the office energetically & faithfully, & to the credit of the Co. he represents," & Mr. Hays goes on to say—"I need hardly say I shall part with Mr. Reeve with extreme regret. I have never had an officer associated with me in the position occupied by Mr. Reeve, in whose judgment, zeal & fidelity I placed greater confidence. His long connection with & consequent familiarity with the traffic conditions of the property have made his services highly valuable." Well, that tribute from Mr. Hays, than whom there

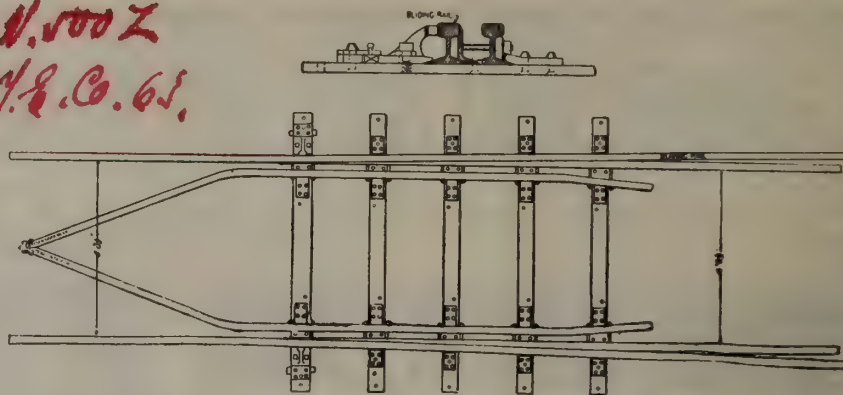
is not a better judge on the continent of America, is a very high tribute indeed to the value of Mr. Reeve's services. We shall part with him with the utmost possible regret. Mr. Hays has made certain recommendations, which have been approved of by the board, for supplying the place of Mr. Reeve, & I think you will entirely endorse his action, & that of the directors, when I tell you that, as the result of his retirement, there will be promotion in the staff—no outside person will be introduced; but it has been found possible, owing to the ability & the intelligence of the gentleman who has been working under Mr. Reeve, to make promotions in the office, which will supply, & I hope, adequately supply, the loss of his services. I think there is nothing more of an interesting character with which I need trouble you now, & I will merely conclude by proposing to you the resolution.

The report & accounts & the recommendation for the payment of dividends were adopted. G. von Chauvin, Col. F. Firebrace, A. W. Smithers & Sir W.L. Young were re-elected directors. F. Whinney, London, Eng., & T. Davidson, Montreal, were re-elected auditors. On motion of Mr. Liversedge a hearty vote of thanks was passed to the directors & to the staff in Canada. Mr. Liversedge said the best tribute to their labors was the fact that the meeting had had no criticisms from the shareholders.

The Creeping of Rails.

N. W. Eayrs, Superintendent of the Eads Bridge, St. Louis, Mo., has supplied the following information as to the exact amount of rail creeping on this bridge & the means adopted to accommodate it. He says: "This movement of the rails occurs not only upon the spans, but also upon the east approach trestle; the movement on the latter is, however, considerably less now than it was before the trestle was reconstructed. The original structure was very light, & in consequence there was an unusual amount of elasticity in the floor. The creeping occurs always in the direction of the traffic; that is to say, the west-bound track runs west & the east-bound track east, & varies in amount with the variation in tonnage passing over the rails. The movement is dependent on the elasticity of the track supports; with increased stiffness in the floor system the amount of rail movement is decreased; in fact, several years ago a portion of the east approach trestle, a wooden structure about 1,000 ft. in length, was filled

11,500 Z
J. E. C. 65.



"THE IRISHMAN" AT THE EADS BRIDGE, ST. LOUIS.

& the track put on the ground. In this portion the rail movement almost entirely disappeared. As corroborating my opinion that the rail movement is caused by the elasticity of the road-bed, I may mention a section of track on the Canadian Pacific, which was laid on a soft marsh. If my memory serves me rightly as to the amount, this section of track moved 2 ft. under a single train.

"From April 15 to May 15, 1899, some measurements of the movement were made at two points, one on the centre span of Eads Bridge, & one at the west end of a 5° 43' curve on the east approach. The movements were as follows:

East-bound track.	Centre span.	East approach.
North rail.....	17 ft. 10½ ins.	25 ft. 9 ins.
South ".....	19 ft. 4½ ins.	47 ft. 7 ins.
West-bound track		
North rail.....	19 ft. 9½ ins.	33 ft. ½ in.
South ".....	12 ft. 7½ ins.	34 ft. 2½ ins.

"The rails on the east approach have a much larger run between creeping points than on the bridge, which accounts for the increased rail movement.

"Attempts were made at one time to check this movement, but it was found inadvisable to continue the experiment, as the strain on the fastenings was sufficient to tear fish-plates in two, or to shear off a ¾ in. track bolt. Accordingly the track was kept continuous by inserting pieces of rail of various lengths at the end where the movement commenced, and removing corresponding pieces at the other end. At either end of the bridge there are cross-overs which of course must be kept in line; at these points, therefore, the rail movement required control; there are also two points on

the east approach on each track which require protection. Accordingly there are 8 "creeping plates" as we call them, in the track.

"In order to avoid the necessity of keeping a supply of pieces of rail from 2 in. long to 30 ft. long at each place, & to dispense with the necessity of keeping a trackman to watch these places, we put in, about 15 years ago, a device which is shown on the accompanying drawing. This device consists of a pair of switchpoints, rigidly held to gauge by forming part of an iron frame which is bolted to the ties. The main rails of the track which is ahead of the device—that is, in the direction of the traffic—extend outside of the switch points. A full rail is coupled on to the main rail, which, in case of a trailing point, drags the rail through the jaws, or, in the case of facing points, shoves it through the jaws. In the former case, when the rail has nearly passed through, a new rail is coupled on, & in the latter case the rail is uncoupled as soon as it has passed through the creeper (or the 'Irishman,' as the trackmen call it, as it takes the place of the Irishman formerly employed). The rail which has been shoved through the creeping plate & has been taken off, is carried across to the opposite track to be used to feed into the creeping plate & begins to travel back again.

"The force impelling the rail is so strong that it will drive a straight 70 lbs. steel rail through a 5° 43' curve, curving the rail during the passage & straightening it again after the rail comes through.

"The movement on the spans can probably never be entirely overcome, as the deforma-

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tion of the arched ribs under the action of a moving load intensifies the action of the elasticity of the track."

We submitted Mr. Eayrs' remarks to the Manager of the C.P.R. western lines, W. Whyte, who writes us as follows:—"I expect the article refers to the creeping track on the Barclay muskeg, at bridge 223, about 217 miles east of Winnipeg. When the track at this point was laid with 56 lbs. steel, it used to move under every train, rendering it necessary for the Co. to keep a watchman on duty there day & night with short pieces of rails to meet the expansion & contraction. I myself, in 1887, saw the track creep while a train was passing over it, 2 ft. 4 ins. To stop this creeping, the length of the ties was increased from 8 ft. to 12 ft., & a slot cut in the base of the rail over each tie, the slots being staggered, that is the slot in the rail over one tie would be on the inside of the rail & over the next tie on the outside of the rail, & two slots were not cut in the rail over one tie, to prevent weakening the rail too much. When the track was laid with 72 lbs. steel, 44 in. angle bars were used, & the steel laid with even or square joints, so that the ties would not slew with the creeping. The rails were not notched as above set forth, but angle bars used on the centre of every second rail, which were spiked to the ties. This is the practice we have been following on muskegs where track creeps. This has had to be done at Oxdrift & Telford with our 73 lbs. steel & 26 in. angle bars, which have spike holes punched through them, & which give far better service than the 44 in. angle bar with the slotted holes, as the shoulder was continually wearing off on the latter, rendering the bar useless for holding the rails, & by slipping past the spikes, destroyed the gauge of the track. By this means we have been able to stop creeping track, but the joint ties still churn on the muskeg. By laying the rails with even or square joints we have prevented the joint ties from slewing, & kept the track in gauge.

"In addition to my own personal observations, as mentioned above, measurements have been taken of the distance the track crept under a moving train, & these show that a movement occurred in the track of from 2 to 37 ins., depending on the temperature, weight of engine & train, & softness of bottom. Where the grade descends to these muskegs, & is in the direction the heavy traffic is moving, the creeping was always greater."

Recent Ontario Legislation.

Among the Acts passed at the recent session of the Ontario Legislature were the following:—

To confirm an agreement between the commissioners for the Queen Victoria Niagara Falls Park & the Fort Erie Ferry Ry. Co., & relating to the said Co.

Respecting certain railways.

Respecting aid to certain railways.

Respecting aid by land grant to the Algoma Central Ry. Co.

To amend the street railway act.

Respecting mortgages by electric railway companies or street railway companies.

Respecting the Town of Port Arthur.

Respecting an agreement between the City of Stratford & the G.T. Ry. Co.

To incorporate the Bracebridge & Trading Lake Ry. Co.

To incorporate the Camp Bay & Crow Lake Ry. Co.

To amend an act respecting the Fort Erie Ferry Ry. Co.

Respecting the Hamilton Radial Electric Ry. Co.

To incorporate the Huntsville & Lake of Bays Ry. Co.

To revive, extend & amend an act to incorporate the Ingersoll Radial Electric Ry. Co.

Respecting the Manitoulin & North Shore Ry. Co.

Respecting the Metropolitan Ry. Co.

To incorporate the Nickel Belt Ry. Co.

Respecting the Ontario, Belmont & Northern Ry. Co.

To incorporate the Ottawa & Dundas Ry. Co.

Respecting the Pacific & Atlantic Ry. Co.

To incorporate the Queenston, St. Catharines & Port Dalhousie Electric Ry. Co.

Respecting the Sudbury & Nipissing Ry. Co.

To incorporate the Superior & James Bay Ry. Co.

Respecting the Toronto Suburban St. Ry. Co.

To incorporate the Victoria Mines Ry. Co.
To incorporate the Wabigoon, Manitou & Rainy Lake Ry. Co.

To incorporate the Woodstock, Thames Valley & Ingersoll Electric Ry. Co.

Respecting the Algoma Commercial Co.

C P.R. Financial Statements.

The balance sheet appended to the recent annual report contained an item of \$1,272,477.44 as an asset under the head of "miscellaneous securities & advances." Following are the details:—

Chateau Frontenac (Quebec hotel), stock, Canada Northwest Land Co., stock (cost).	\$280,000 00
(Taken by this Co. in 1882, as one of the terms of the sale of 2,200,000 acres of land to the C.N.W.L. Co.)	518,087 27
Niagara Bridge & Real Estate. (Acquired in 1890, with view to extension of line from Woodstock & Hamilton to Niagara Falls)	96,823 57
Dominion Express Co., stock. (This Co.'s Express, the stock of which is all held in the treasury. Amount paid up represents cost of original equipment & organization.)	113,750 00
Insurance Premiums prepaid. (On contract to secure advantageous terms)	193,566 60
South Ontario Pacific Ry. Stock. (This Co.'s organization for line, Woodstock, Hamilton & Niagara Falls)	20,000 00
Nakusp & Slocan Ry. Stock	35,000 00
Miscellaneous Securities and Advances	15,250 00
	\$ 1,272,477 44

NOTE.

Amount advanced Minn. St. Paul & Sault Ste. Marie Ry for interest under guarantee	\$963,846 89
Less amount repaid	325,000 00
	\$ 638,846 89

LAND SALES IN 1898 & 1899.

	Acres.	Amount realized.	Average per acre.
C.P.R. Land Grant, 1899	326,280	\$1,016,081	\$3 11
1898	242,135	757,792	3 13
Manitoba S.W.R. Grant 1899	90,526	311,586	3 44
1898	106,473	363,982	3 42
Total sales,.....1899	416,806	1,327,667	3 19
1898	348,608	1,121,774	3 22

POSITION OF LAND GRANTS AT DEC. 31, 1899.

	Acres.	Acres.
Canadian Pacific—		
Original grant	25,000,000	
Surrendered to Government under agreement of Mar. 30, 1886	6,793,014	
	18,206,986	
Souris branch land grants	1,611,520	
	19,818,506	
Sales to Dec. 31, 1899	4,248,284	
Less cancelled in 1899	19,841	
	4,228,443	
Quantity unsold	15,590,063	
Manitoba South Western—		
Total grant	1,396,800	
Sales to Dec. 31, 1899	417,690	
Less cancelled in 1899	5,084	
	412,606	
Quantity unsold	984,194	
Columbia & Kootenay—		
Total grant	190,000	
Sales to Dec. 31, 1899	6,208	
	183,792	
Total land owned by the Co.	16,758,049	

In addition to the foregoing the Co. will receive through the B.C. Southern Ry. about 3,350,000 acres. 4,228,443 acres sold, amounting to \$13,697,269 88 6,793,014 acres taken by Dominion Government

10,189,521 00

\$23,886,790 88

Less—Expenses, cultivation rebate, and 10% on land grant bonds retired and cancelled

2,998,631 52

\$20,888,159 36

Add—Proceeds Col. & Koot. Ry. land sales

1,895 45

Proceeds M.S.W.C. Ry. land sales

70,195 93

\$20,960,250 74

Comparative statement of earnings & expenses 1890 to 1899:—

	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.	1890.
Passengers	\$7,098,066 70	\$6,538,884 96	\$5,796,115 12	\$4,820,143 30	\$4,683,137 74	\$4,840,412 33	\$5,656,204 90	\$5,556,316 40	\$5,459,789 46	\$4,774,713 76
Freight	18,738,884 96	16,231,444 93	15,257,896 94	13,187,500 31	11,877,851 95	11,445,377 78	12,673,075 38	13,330,540 19	12,665,540 26	10,106,644 02
Mails	618,385 19	609,974 57	603,210 49	607,543 98	540,116 18	498,129 16	496,134 49	483,922 58	516,098 45	356,038 61
Express	663,960 52	615,631 43	530,749 65	460,201 90	387,605 93	342,472 20	333,975 39	302,259 34	288,633 25	260,268 43
Parlor & sleeping cars	441,647 54	455,345 07	361,777 38	303,688 48	302,637 63	331,719 69	380,470 10	331,202 73	303,545 09	268,096 76
Telegraph, grain elevators & miscellaneous, including profits on Pacific steamships	1,669,063 35	1,687,991 55	1,499,785 07	1,302,458 87	1,149,687 44	1,294,056 46	1,422,457 18	1,405,110 53	1,007,489 47	786,767 40
Total	\$29,230,038 26	\$26,138,977 13	\$24,049,554 65	\$20,681,596 84	\$18,341,036 87	\$18,752,167 71	\$20,962,317 44	\$21,409,351 77	\$20,241,092 98	\$16,552,528 98
Expenses	16,999,872 77	15,663,605 51	13,745,758 76	12,574,015 10	11,460,085 88	12,358,858 63	13,220,901 39	12,989,004 21	12,231,416 11	10,252,828 47
Net earnings	\$12,230,165 49	\$10,475,371 62	\$10,303,795 89	\$8,107,581 74	\$6,880,950 99	\$6,423,309 08	\$7,741,416 05	\$8,420,347 56	\$8,009,659 87	\$6,299,700 51

W. Whyte, Manager of the C.P.R. Western Lines, sailed from Vancouver May 7, on the R.M.S. Empress of China for Yokohama, on a pleasure trip. He is accompanied by John Burns, of Toronto.

C.P.R. Earnings & Expenses.

Gross earnings, working expenses, net profits and increases over 1899, from Jan. 1, 1900 :

	Earnings.	Expenses.	Net Profits.	Increase.
Jan..	\$2,152,071.32	\$1,460,501.71	\$ 691,569.61	\$ 74,035.75
Feb..	1,954,087.59	1,331,355.34	622,732.25	23,930.77
Mar.	2,294,786.97	1,495,685.73	799,101.24	176,368.99

\$6,400,945.88 \$4,287,542.78 \$2,113,403.10 \$665,997.99

Approximate earnings for April, \$2,461,000, against \$2,168,000 in April, 1899; increase, \$293,000.

SUBSIDIARY LINES.

DULUTH, SOUTH SHORE & ATLANTIC.—Approximate earnings for April, \$206,518; increase over April, 1899, \$35,813.

Net earnings for Feb., \$77,157, against \$41,868 for Feb., 1899.

MINERAL RANGE, HANCOCK & CALUMET.—Approximate earnings for April, \$43,744; increase over April, 1899, \$15,881.

MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE.—Approximate earnings for April, \$414,169; increase over April, 1899, \$104,529.

Net earnings for Feb., \$142,973, against \$60,688 for Feb., 1899.

Canadian Pacific Railway Land Sales.

	Acres.		Amount.	
	1900	1899	1900	1899
Jan.....	31,486	14,718	\$ 100,857.85	\$ 46,411.35
Feb.....	23,613	13,747	75,771.19	43,371.69
Mar.....	31,183	24,945	97,777.79	75,460.76
April....	58,457	36,626	181,775.78	116,835.84
	144,739	89,136	\$456,182.61	\$282,079.64

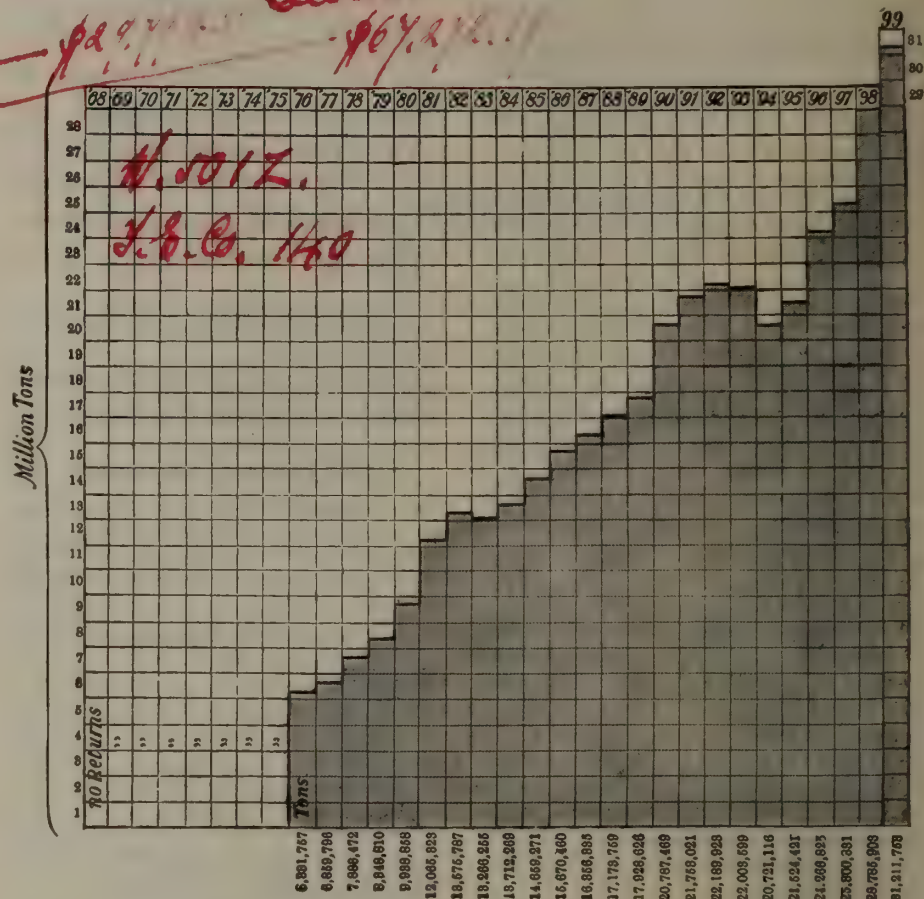
Grand Trunk Earnings, Expenses, &c.

The following statement of earnings supplied from the Montreal office, includes the G.T. of Canada, & the Detroit, Grand Haven & Milwaukee Rys., the earnings of the Chicago & G.T., which is in the hands of receivers, being omitted :

	1900	1899	Increase	Decrease
Jan....	\$ 1,819,988	\$ 1,606,065	\$ 213,923	.....
Feb....	1,587,923	1,505,549	82,374	.....
Mar....	1,830,834	1,798,968	31,866	.....
April...	1,813,714	1,637,867	175,847	.....
	\$ 7,052,459	\$ 6,548,449	\$ 504,010	.....

FREIGHT TRAFFIC ON CANADIAN RAILWAYS.

The following diagram shows the number of tons of freight carried by railways in the Dominion for each year ended by 1899, from 1877 to 1899.



The following figures are issued from the London, Eng., office :

TRAFFIC RECEIPTS OF THE SYSTEM.

Traffic receipts, Jan. 1 to Mar. 31 :				
	1900.	1899.	In-crease.	De-crease.
Grand Trunk...	£1,032,273	£ 967,240	£ 65,033	.....
D., G. H. & M ..	44,178	41,782	2,396	.....
Total.....	£1,076,451	£1,009,022	£ 67,429	.....

The engagement is announced of W. Grant, of Ahearn & Soper, Ottawa, and son of Sir Jas. Grant, to Miss Katharine Hall, of New York.

H. Szlapka, formerly Engineer & Manager of the Hamilton Bridge Co., is suing R. M. Roy, Engineer of the Co., for \$5,000 damages, claiming that Roy issued a circular about him in Jan. which directly did him a serious wrong.

THE FAIRBANKS COMPANY.

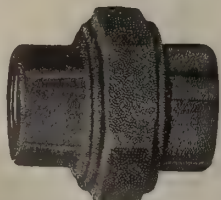
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A G.T.R. Paint Stock-Room.

T. J. Hutchinson, Foreman Car Painter, G.T.R., London, Ont., has sent us a photograph of the paint stock-room there, which is reproduced on this page. He describes it as follows:—"The stock-room is 30x55 ft. long, & is well lighted & heated; also fitted up with a liberal supply of hot & cold water, & is connected with the sash room by a door at the end. At the front entrance a space of 6 x 14 ft. is allotted for the workmen to stand while being served over the counter by the stockman. At one end of this space are 2 gates through which barrels of supplies are received. Three of the large tanks, seen at the end of the room, contain freight & truck color & stand 3½ ft. from the shelving. These are equipped with air muddlers operated from the rear or wall side.

"Similar tanks on the right hand side contain our monthly supply of varnishes, japan, turpentine, &c. Above these is a rack upon which we hoist the barrels to be emptied into the tanks below. The tables in the centre of the room are placed at right angles to the counter, with ample space between them. Upon the first is an elevated shelf upon which stand our small varnish cans. These are filled daily, weighed & marked for use the following day. Our color & varnish brushes are carefully kept by the stockmen in airtight receptacles so constructed that the brushes are suspended & the lid closes into a gutter in which turps is kept to the depth of ½ in. This is found to be quite satisfactory.

"On the second table are 3 carboys of 16-gallon capacity with syphons attached, which hold the mixture for our lead coats. These are made airtight with rubber corks & thumb screws fastening on top & the formula for each is shown on a tag secured to the carboy. By this method we are able to avoid some of the 'deviltries' & work with confidence as to results.

"In addition to what is shown in the illustration there is a case of drawers for holding stencils for freight & passenger car work, each kind kept in separate shallow drawers, the outside being lettered to show the contents. Alongside this is a vertical cleaning rack lined with zinc & fitted with a gutter at the bottom to hold the benzine used while cleaning the stencils. This gutter has a faucet at the end through which to drain off the benzine when the work is finished. All stencils are, therefore, properly cleaned before being stored away. There is also in successful operation a cast iron tank 2 ft. wide by 6 ft. long, heated with steam, for cleaning paint & varnish pots, with a cold water rinsing sink alongside. At the opposite corner there is situated a glass rack & cutting table, making our stock-room one of the most complete in Canada."

Railway Equipment Notes.

The St. Lawrence & Adirondack is having 2 locomotives built.

Four box cars are being turned out daily at the Canada Atlantic's Ottawa shops.

The Ottawa & Gatineau is said to have ordered 4 cars for excursion purposes.

Rhodes, Curry & Co., Amherst, N.S., are turning out 4 freight cars a day for the I.C.R.

Work will soon be started in the I.C.R. Moncton shops on the 120 box cars of which previous mention has been made.

It is expected that orders will be placed for the I.C.R. for about 500 box cars of 60,000 lbs. capacity, for this year's delivery.

A bill requiring the adoption of automatic couplings on railway cars has passed its second reading in the British House of Commons.

The Baldwin Locomotive Works has 2 locomotives at the Paris Exposition. One is a freight mogul & the other is a large & power-

year, & leaving out Sundays it is at the rate of about 4 for every working day.

It is understood the I.C.R. management is in the market for between 20 & 30 locomotives, mostly for freight service, which will be of the same size & capacity as those obtained last year from the Baldwin Works. The passenger locomotives will be similar to the ones about to be built in the Moncton shops.

The C.P.R. Western Division shops at Winnipeg have been very busy repairing locomotives & freight cars, which have got out of order through the heavy strain of winter work. The elevator companies are shipping more extensively from country elevators to Fort William since the opening of navigation.

During 1899 the Baldwin Locomotive Works built locomotives for 19 different rail gauges. They were 1 ft. 7½ ins., 1 ft. 9½ ins., 1 ft. 11½ ins., 2 ft., 2 ft. 6 ins., 2 ft. 6½ ins., 2 ft. 11 ins., 2 ft. 11½ ins., 3 ft., 3 ft. 3 ins., 3 ft. 3½ ins., 3 ft. 6 ins., 3 ft. 8 ins., 4 ft., 4 ft. 8½ ins., 4 ft. 9 ins., 4 ft. 9½ ins., 5 ft., 5 ft. 6 ins.

In our Feb. issue, pg. 43, we gave extended extracts from specifications issued by the Great Northern Ry. of Canada, inviting bids for a lot of rolling stock. Jas. McNaught, of 35 Nassau St., New York City, appears to be placing the orders, but we have no definite information as to what has been done. He is said to have ordered a number of box, gondola, stock & refrigerator cars & to be figuring with the Baldwin Locomotive Works for locomotives.

The Minneapolis, St. Paul & Sault Ste. Marie has ordered 6 consolidation locomotives for delivery early in Oct. They will be 2 cylinder compounds, the cylinder dimensions not having yet been decided upon. They will weigh about 167,000 lbs., with about 152,000 lbs. on drivers. They will have 55 in. in diam. drivers, extended wagon

top type boilers, radial stays, steam pressure 210 lbs., charcoal iron tubes 2 in. in diam.; tank capacity for 6,000 gals. of water & 9 tons of coal. They will be equipped with Westinghouse air brakes, & Westinghouse friction draw gear.

The White Pass & Yukon is rapidly adding to its motive power & other rolling stock. Seven locomotives will be shipped north to Skagway by the middle of July, 120 cars are being built there & additional passenger coaches will be sent from the south. Three of the locomotives are simple consolidation for freight traffic, cylinders 16" x 20"; eight drivers 38" diam., 36" gauge; driving wheel base, 12' 9", total wheel base of engine 19' 9"; weight on drivers about 75,000 lbs., weight on truck wheels about 10,000 lbs., total about 85,000 lbs; straight boilers to work under steam pressure of 180 lbs.

At the recent annual meeting of the stockholders of the Richmond Locomotive Works the retiring directors & officers were re-



G.T.R. PAINT STOCK ROOM AT LONDON, ONT.

ful express engine of the 8-wheel type, with 84½-in. drivers.

An order has been given to build at the I.C.R. Moncton shops four 10-wheel passenger engines, 20 x 26 cylinders, 72" drivers, weight 145,000 lbs., tender tank capacity 3,500 Imperial gals.

An order was placed recently for 50 platform cars of 60,000 lbs. capacity for the Ontario & Rainy River section of the Canadian Northern. They will be equipped with automatic couplers & air brakes.

A few old passenger cars on the I.C.R. have been divided into three equal spaces, making one end 1st class, the other end 2nd class & baggage compartment in the centre. They are for use on branch lines & mixed trains.

The Baldwin Locomotive Works are now employing 8,000 men. This year up to Mar. 31, they turned out 310 locomotives, of which 40%, or thereabouts, are compound. This is at a rate of over 1,200 locomotives a

elected. The shops are rushed to their full capacity with work, & sufficient orders, it is said, are booked to keep the works busy for months to come. Extensive improvements are being made at the works, by which the capacity of the plant will be nearly doubled. There are now some 1,500 men employed, & more will be put on when the new buildings are completed. The largest of these will be the boiler shop, the dimensions of which are 450x72 ft., with a length of 32 ft. This will be filled with the largest & most improved machinery.

During the half-year ended Dec. 31, 1899, 13 locomotives were scrapped or sold, 10 passenger engines were built at the G.T.R. Co.'s Montreal works, & 9 compound consolidation locomotives were purchased. The actual stock on Dec. 31 was 806 engines. During the half-year, at cost of capital, 5 locomotives were supplied with driver brake & air brake equipment, 10 with driver brake, 19 with car warming equipment, 68 with train air signal equipment, & 120 with vertical plane coupler. At cost of capital 1,395 freight cars were equipped with automatic couplers & Westinghouse air brakes, 2 passenger cars were fitted with air signals, & 18 passenger cars were fitted with steam-heating apparatus. At cost of revenue 5 day coaches, 2 baggage cars, & 215 box cars were built at the Montreal shops.

Manitoba & Northwestern Railway.

President Shaughnessy, of the C.P.R., issued the following circular May 9:—"The M. & N. W. Ry. having been leased to the C.P.R. Co., it will after midnight, May 14, be operated as part of the Western division of that Co. All employees then in the M. & N. W. service will become employees of the C. P. R. Co., & will take their instructions from & report to the officers of that Co."

General Manager Baker, of the M. & N. W. R., issued the following circular on the same date:—"On the 15th inst. the lines of this Co. will become a portion of the C.P.R. system, & on that date the employees of this Co. will become employees of the C.P.R. Co. As my connection with the M. & N. W. R. Co. as its General Manager will cease at the same time, I cannot allow this opportunity to pass without expressing to those who have been associated with me for so many years my grateful thanks for the cordial assistance & support that I have at all times received during the varied phases of the Co.'s career; & my earnest hope for their future welfare & success."

The M. & N. W. R. will be operated as the Northwestern branch of the C. P. R.'s Western division, under Manager Whyte & General Superintendent Osborne, & will be under the immediate charge of Superintendent James, whose jurisdiction includes the main trans-continental line between Winnipeg & Brandon & all the Manitoba branches, as well as the recently acquired Great Northwest Central line.

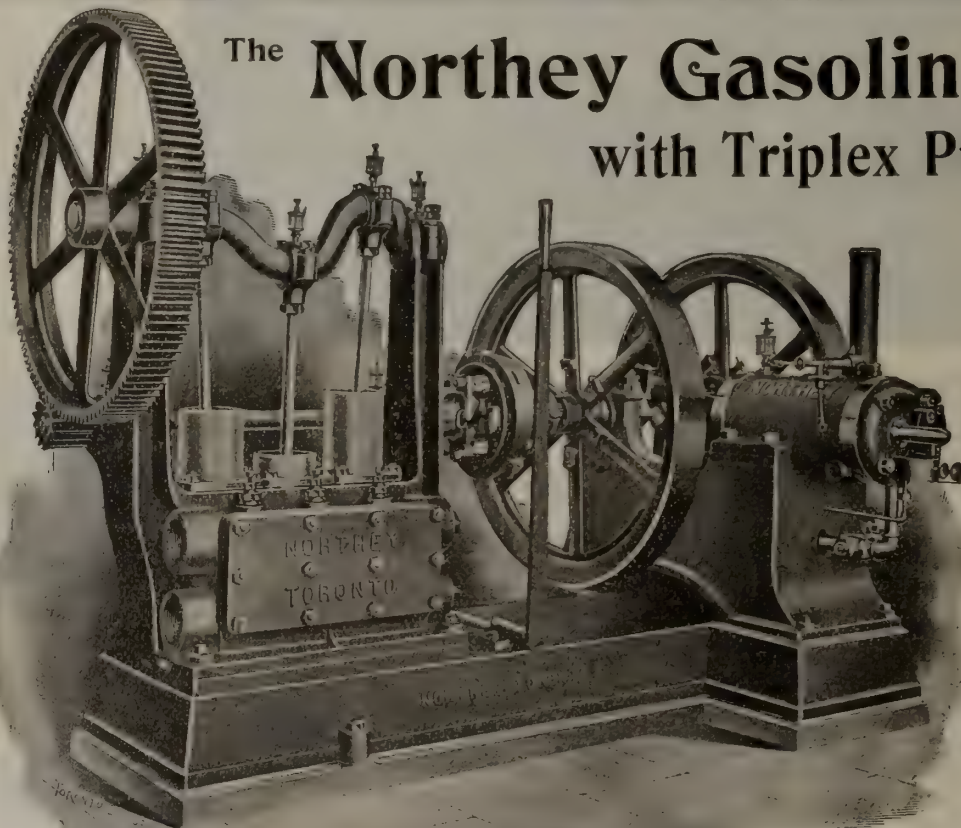
W. R. Baker, who has been appointed Executive Agent of the C.P.R. for Manitoba & the N.W.T., was born in England in 1852. He entered the railway service in 1873 as Local Freight & Passenger Agent of the Canada Central Ry. at Ottawa, since which he has been consecutively, Feb., 1881, to Sept., 1881, Local Treasurer & Assistant to General Superintendent Western Division C.P.R.; Sept., 1881, to May, 1882, Purchasing Agent Western Division C.P.R.; May, 1882, to June, 1883, Assistant to General Manager C.P.R.; June, 1883, to Sept., 1892, General Superintendent Manitoba & North-Western Ry.; Sept., 1892, to May, 1900, General Manager M. & N.W.R.

G. B. Reeve's Retirement.

The recent retirement of G. B. Reeve, General Traffic Manager of the G.T.R., from the Co.'s service, after being in it for 40 years, was made the occasion of a series of presentations & entertainments, which bore eloquent tribute to the esteem in which he is held by the Co., by its other officials & by the public generally. The principal officials of the Co. entertained him at luncheon at the Windsor Hotel, Montreal, presenting him with a solid silver dinner set of 10 pieces, & an autograph album containing the signatures of the 101 subscribers. General Manager Hays gave a dinner in Mr. Reeve's honor at the Mount Royal Club, Montreal, at which a number of the most prominent officials of the G.T.R. & of the Central Vermont were guests. And, lastly, the Montreal Board of Trade entertained him at dinner at the Windsor Hotel, some 200 being present. In the course of his reply to the toast of his health, Mr. Reeve said:—

"The G.T.R. was built up by foreign capital; it was not built up by subsidies from the provincial & federal governments. At that time they were unknown. It was entirely through foreign capital that the G.T.R. was inaugurated, & I have no hesitation in saying that if it had not been for the G.T., Canada would have been at least 20 years behind the times. It is true that I have spent the last 40 years in the service of the G.T.R. It is also true that I do not regret that service. It is further true that some years ago I had some doubts of my continuation in the service, but I always had faith in the old G. T., & always had very great faith in the future of Canada. I have always felt sorry that Canada & Canadians generally did not appreciate the G.T.R. as they really ought to have done. The railway has done much for

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this country, though Canadians in investing their capital can hardly be blamed for holding the G.T.R. in disfavor, in consequence of no revenue returns in past years. It is now, I am glad to say, in that position where it is on a paying basis. The time is now arrived when I shall assign myself to different service, & I trust that in the new service in which I am to confine myself, I shall be more useful than I can anticipate I should be in remaining in the service of the G.T.R. My service in connection with the G.T.R. was inaugurated in May, 1860, & on April 30 I shall have completed 40 years of continuous service with that Co., & nothing would have given me greater pleasure than to have worked 10 years longer under the most able management & the most kind-hearted General Manager that any railway official ever had the opportunity of serving under."

Mr. & Mrs. Reeve left Montreal May 1, in a private car, for La Pomelo Ranch, La Mirada, California, where they will reside in future.

A Weed-Burning Car.

E. A. Williams, Mechanical Superintendent of the Minneapolis, St. Paul & Sault Ste. Marie Ry., has favored us with photographs & drawings of the weed-burner used on that line, from which the illustrations on this page are made. In the construction of this weed-burner use is made of an ordinary flat car, on the front end of which (as it runs in service) is mounted an upright 30-h. p. boiler & pair of 7x10-in. engines. By means of sprocket chain connection between the engine shaft & car axle the car is made self-propelling. After some experience it was found necessary to connect the second axle of the truck with the first, or that driven by the engine, by means of a sprocket chain, in order to overcome slipping due to the lopping of long weeds over the rails. By this means of locomotion a speed of from 10 to 12 miles an hour is easily made, as when running for stations to meet passing trains. The water supply for the boiler & for extinguishing fires which may be caused by the machine is shown by figure 1, while the arrangement of the machinery on the car, & the principal dimensions are shown in figure 2.

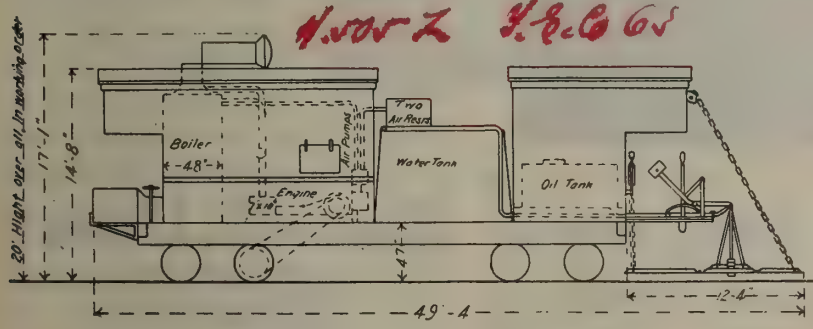


FIG. 2.—ARRANGEMENT OF MACHINRY IN WEED-BURNING CAR.

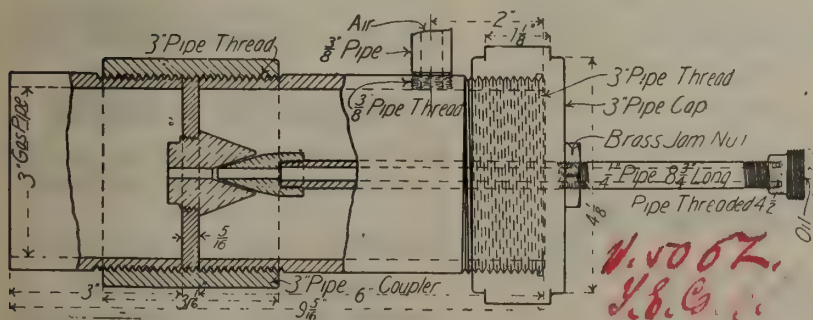


FIG. 3. DETAILS OF WEED-BURNING CAR.



FIG. 1.—WEED-BURNING CAR, M., ST. P. AND S. STE. MARIE RY.

The burner shield, which is made of iron plate, covers the track around the burners, & serves the three-fold purpose of protecting the car from the heat of the burners, protecting the flame from the wind, & in confining the heat to the immediate vicinity of the ground surface. The shield has flaps, front & back, adjustable by chains attached to counterbalanced levers. There are 6 burners in all—4 being between the rails & one outside of each rail. The burners stand 15½ ins. apart, from centers, the burners outside of the rails being 7¾ ins. from the center of the rail. The details of these burners are made sufficiently clear in figure 3, it being understood, of course, that the burner, as used on the machine, stands in the vertical position.

The car is operated by two men: one to fire the boiler & run the engine & another to operate the burners. From 10 to 13 miles of track are burned over per day, & on an average about 20½ gals. of crude petroleum are consumed per mile of track burned over. Ordinarily the track is burned over only once during the season, but if the burning is not started until late in the summer, or until the weeds have got a good start, or where the growth is particularly heavy, it is sometimes found necessary to burn the same ground over twice during the season.

With reference to the cost of operating, the following statement of the performance of the car in burning over 722 miles of track during the season of 1899 gives the various items in detail: Total cost, including wages, \$253.49; oil, 14,768 gals., at \$.0389; coal, 93,150 lbs., at \$.282 a ton; & repairs, \$121.87, was \$1,081.17, or \$1.50 per mile. The average quantity of oil used per mile was 20.45 gals. This description is reproduced from the Railway & Engineering Review, to which it was furnished by Mr. Williams.

Grand Trunk Betterments, Etc.

A movement is on foot to secure an extension of the Montreal & Province Ry., which runs from St. Lambert to Farnham, Que., 32 miles, & is leased by the Central Vermont. The proposed extension would go via Stanbridge east & Frelighsburg to the boundary between Quebec & Vermont.

Contracts have been awarded for the roofing, metal work, carpentering, hardware & painting of the general office building on McGill st., Montreal. The masonry contract was awarded last year.

The enlargement of the St. Annes & Vaudreuil bridges, & the duplication of the track

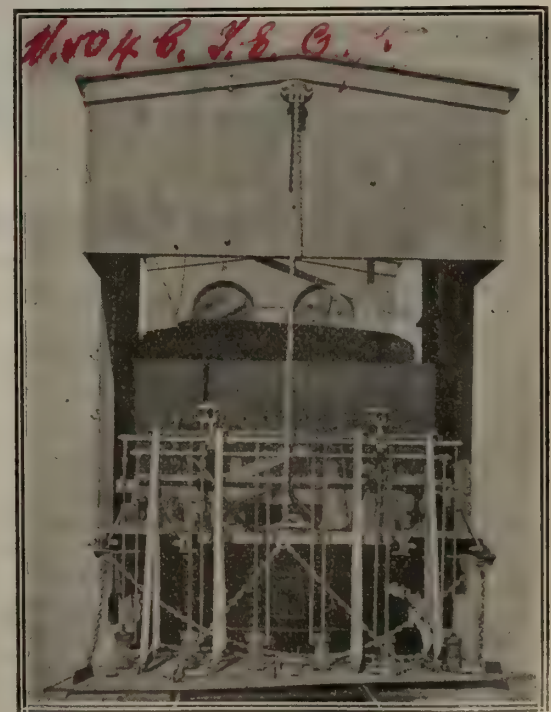


FIG. 4.—END VIEW WEED-BURNING CAR.

on these structures is about completed, & trains will soon be running over the second track. When this improvement is finished the G.T. will have a double track between Montreal & Toronto, with the exception of the 46 miles between Port Union & Port Hope. Some day the Co. intends to lay a double track between these points, but it is not included in the improvements which are to be carried out in the immediate future, & the company will have a large force employed this summer in improving the road bed on the eastern division. A great deal of ballasting & other work is now going on in order to bring the road bed up to a first-class condition after the wear & tear of the winter.

C.P.R. Betterments, Construction, Etc.

McAdam Jet. Station.—Work has been commenced on this building, which will be a handsome $2\frac{1}{2}$ story structure of McAdam grey granite, with Welsford Red Granite corners, which will make a pretty contrast in color. It will be 133x36 ft., with a basement 60x36 ft., in which will be located the coal cellar, kitchen, larder, scullery, laundry, drying room & boiler room. On the ground floor will be the lunch room & dining room, which will form part of the hotel, & ladies' & general waiting rooms, toilet rooms, ticket office, baggage & express rooms. The first floor will be divided, half being taken up by the hotel accommodations, which will consist of 7 bedrooms, parlor, reading & writing room, bath room & closets. On the other end of this floor, & separated from the hotel, will be the offices of the superintendent & staff, train despatchers, train master & conductor's agent, freight & customs. The attic will contain 4 bedrooms for the hotel servants. A veranda will surround the entire structure.

Place Viger, Montreal.—The foot bridge leading from Notre Dame st. to the landing platform of the Place Viger station has been completed, & is open for traffic. Its construction has been much delayed by the difficulty in procuring steel. The completion of the bridge releases the last of the city's grant on account of the new station, hitherto withheld as security for the construction of this bridge, which is considered a great advantage by the people of the East ward.

Norwood to Apsley.—A short time since a deputation from Peterborough county, Ont., interviewed President Shaughnessy in regard to the construction of a branch from Norwood, on the Montreal-Toronto line, 18 miles east of Peterborough, to Apsley, in the northern part of the county, some 25 miles. It is

said Mr. Shaughnessy recommended the deputation to form a local company & obtain a charter, & said that if the usual Government subsidies were secured the C.P.R. would arrange to build the line & operate it. It is said steps are being taken to act upon Mr. Shaughnessy's suggestion. (Aug., '99, pg. 233.)

Toronto Terminals.—An additional freight shed, 38x600 ft., similar in construction to the present one, & a freight office, 40x85 ft., are being built. Both these buildings will be covered with galvanized iron. A roadway about 30 ft. wide is being made along the south side of the new freight shed. A new track is being laid along the north side of the new freight shed, & a new track from York st. bridge along the northerly limit of Lake st., & to the south of the new roadway. This track will be used as a delivery track. The other tracks will remain as they are, except that the present track to the south of the old freight shed will be shifted a few feet to the south to have it the proper distance from the proposed new track along the north side of the new shed. The present bonded shed, which is about 200 ft. long, & located south of the present freight offices, will be moved southward a few feet, in order to bring it in line with the new Freight Shed. These two sheds will then form one building 800 ft. long. (Feb., pg. 39, Mar., pg. 71.)

Parkdale.—A statement in a contemporary to the effect that a station is to be built at Parkdale to replace the present one is incorrect, at least as far as this year is concerned, no appropriation having been made for the purpose.

Ottawa Union Station, etc.—The disastrous Hull-Ottawa fire on Apl. 26-27, completely destroyed the Co.'s Union Station, freight sheds, etc., causing a loss on buildings of \$40,000. The Co. also lost 175 freight cars, valued at \$130,000, & freight valued at \$30,000. The illustration here given shows all that was left of the buildings.



Manager Tait, when in Ottawa a few days after the fire, said, in regard to rebuilding: "The proposed buildings will depend altogether on the assurance given the Co. by the city that it will be reasonably protected from fires. The Co. does not propose erecting costly buildings if they are to be surrounded by lumber piles & wooden shanties. If reasonable protection is guaranteed, the Co. is prepared to go ahead immediately with the erection of a station which will be a credit to the city & quite in keeping with the policy of the C.P.R. in building magnificent stations at all important centres. Arrangements have been made so that the station can be located quite convenient to the heart of the city. The freight sheds will be 3 or 4 times the size of those destroyed, & will be constructed with a view to the ornate in architectural design." General Superintendent Spencer has since shown the plans for the proposed new station, yard, etc. They provide for a building 250x50 ft., & 3 stories high. In style it will be similar to the Place Viger station at Montreal. There are two plans for the building, one of brick & stone, the other of stone. The 1st floor will be devoted to general waiting room, ladies' waiting room, dining hall, restaurant, baggage, etc., & the 2nd to offices. Behind the station will be 6 covered ways, ranging from 540 to 800 ft., & giving accommodation to 10 tracks. The passenger tracks will be entirely separate from the freight tracks, the latter coming in on what is now the main line.

Port Arthur.—The press despatch referred to in our last issue, stating that the Co.'s passenger & freight dock at Port Arthur was being re-built in view of the large trade in prospect, was incorrect. Some repairs are being done to no. 2 dock at the foot of Arthur St., but nothing further.

Fort William to Winnipeg.—The Port Arthur Herald recently said: "It is stated that the C.P.R. will construct another track from Fort William to Dexter at the height of land dividing the waters of Lake Superior from those that flow into Hudson's Bay. The new track will be of much lighter grade, & will follow the hills to the south of the present line the greater part of the way. It will follow the Kaministiquia valley so far as practicable, swinging in toward Kakakeba Falls. It is further stated that the present line will, where feasible, be used & the balance taken up. The object sought by the Co. is to secure a track of a light grade to the height of land in order that full trains may be taken to that point, instead of half trains as at present, & thus be on an equal footing with the O. & R.R. Ry., which will be able to pull full



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trains from end to end of its line." We are officially informed that a survey of the line between Fort William & Winnipeg is being made with the three-fold object of reducing grades, easing curves and double-tracking, & inasmuch as the engineers have practically only begun the survey & have not presented any report, the article quoted is, to say the least, premature. (Feb., pg. 39.)

McGregor-Varcoe Branch.—On May 5 we were advised that track-laying on the 28 miles from McGregor towards Varcoe, which was graded last year, would be commenced as soon as possible, but that nothing had been decided on in regard to any further grading this year. (Feb., pg. 39.)

Pipestone Branch Extension.—A recent press despatch from Regina, Assa., said information had reached there from a trustworthy source, that the Co. would at once continue the Pipestone branch up to that town. As stated in our last issue, it is the intention to continue the branch this year to a point between Arcola & Clair, Assa., south of Moose Mountain, but we have been unable to find any authority for the statement that the line will be continued further, or on to Regina, this year. (April, pg. 110.)

Crow's Nest Pass Ry.—A report made by G. R. L. Fellows, Superintending Engineer of this line for the Dominion Department of Railways, on the work done last year, contains some interesting information. Following are extracts: "The second division of the contract, which requires that portion of the line from the south end of Kootenay Lake to Nelson, B.C., to be built before Dec. 31, 1900, was not sufficiently revised in its location to warrant the work being put under contract construction & owing as well to the wet & stormy effects of the past spring & summer weather on the constructed portions of the line, necessitating the holding of all labor to finish & give increased strength to the roadbed, so as to put it beyond all possibility of disturbance from such extraordinary severe rains as has this year been experienced, the consensus of opinion giving a decade to such visitations. Since my last annual report, the finishing up of the work of construction has been vigorously carried on in the face of trying weather, it being nearly continuous into Sept. Following are some of the results of the season's work: Previous to my last annual report the line & its sidings had rails laid over it from Lethbridge to Kootenay Lake, 26% being 73 lbs. to the lineal yard, & the balance 56 & 60 lbs. This year the Co. has laid steel guard rails around maximum curves which terminated or ran on to bridges & trestles. Three trestle bridges have been added to the structures required to pass extreme freshet water, between Pincher & Cowley sidings. In a number of cases extra end bracing of trestles has been done in addition to the standard design requirements, as well as being increased in length where the ends of embankments had suffered from rain, scour & shrinkage. The concrete to support Howe truss span bridges, as well as where it is used in guard piers & river ice-breakers, has shown no weakness or unstable qualities at any point. The bridges yet to be permanently supported with this artificial stone are well

advanced; their completion before the end of the season is practically assured. Permanent riprapping of all concrete structures is going on, those in the larger rivers having been attended to & now about completed. I am pleased to say that under this year's (1899) severe test, have any of the culverts, trestles or bridges failed to do their designed work. The last of the temporary trestle filling, which is at the east approach of the Elk River bridge, is well advanced & nearing completion. A commencement has been made at the filling in of permanent trestles. Where some of them are used, the original surface of the depression crossed has had the appearance of natural drainage, but having been severely tested during the year & given no sign of drainage being required, the Co. is filling them in, the desire being to make as much solid embankment as it is possible to build. Where temporary trestles have been filled, the embankments are being made much wider than is required in the contract, the ballasting as the consolidating goes on being very full. This work is in progress & about completed.



UPPER GATES ON LOCK 24, NEW WELLAND CANAL, THE SCENE OF THE DYNAMITE OUTRAGE ON APRIL 21, SHOWING WATER RUSHING THROUGH THE BREACH CAUSED BY THE DYNAMITE, AND REPAIRS COMMENCED.

At all points near the Michel Creeks, Elk River & Duck Lake embankments that were likely to be touched by extreme high water, strong riprapping made from the large boulders that have accumulated in coarse gravel cuttings, and which were drawn to the work by train service, has been built during the season.

"All passenger stations, sectionmen's houses, repair & machine buildings are well designed & suitable for an enlarged traffic. Elevated coal pocketed chutes & water tanks of 40,000 galls. capacity have been built at terminal points that are much beyond the present needs, in anticipation of an increased traffic. Large ice-houses were erected & filled during the past season. They store ice in quantities that cannot be used should the business of the road increase to four times its present volume. Additional freight sheds have been built to accommodate the fast increasing requirements demanded at established growing centres. The line is now fully served at the terminal points with the best standard turntables, as well as having auxiliary turning locations served with wyes. Among the appurtenances

added during the season are oil buildings, sand houses, well equipped with drying apparatus. Supply railway store buildings & large commodious boarding houses have been put up, all of them being attractive in design & creditable in all respects. The requirements, as specified in the contract for buildings, have been more than filled over this line.

"As the rise in the water of Kootenay Lake, in extreme years, has been known to reach 32 ft. from its low water stage, the Co. has driven cluster piles on the upper side of the trestling that carries the line across the south end of the lake to its western terminus, so as to prevent the structural work being reached by any drift wood or floating objectional bodies. This system of protection has been used liberally around the ends & approaches of the transfer slip, which is situated at the main channel of the river discharge, with satisfactory success. In excess of the stipulated clearing, according to contract, already done, the Co. has cut down during the past season various areas of timber at several points, over soils that are composed of clay gumbo, which

is near & extends across the line of railway. This was done with a view of lessening the severe action of a sudden freshet, by giving the Chinook winds full play to minimize the depth of snow during the winter months, thereby leaving very little to be removed when the melting weather occurred. Experience, owing to the severity of rains that this newly constructed railway has been subjected to, has shown the necessity of changing the prism side lines in similar soils where the physical features are different as they are on this long line of prairie & mountain railway. The reducing of slopes & making wider bases in cuttings, now about completed, necessitated during the past season the concentration of almost all available labour at this work, as well as at the roadbed proper, when composed of light prairie or clay gumbo soils. Although the season's work has been an expensive one, carrying on this work, it has resulted in the embankments being strongly consolidated having extra width, better

slopes than diagram lines asked for in the contract, with the formation bases liberally covered with ballast & to a much greater depth than specified in the agreement. Among some of the various soils that the cuttings have been made through, flatter slopes have had to be given to ensure permanent solidity & safety. Between Lethbridge & Macleod the cemented material that had to be blasted owing to its hard & compact nature has stood well with its sharper slopes than $1\frac{1}{2}$ to 1, the only weakness shown being in the loosened & fractured portions caused by the dynamite when liberating the prism contents, which eroded slightly through the force of the rain storms, the cleaning up of which was satisfactorily completed during the past season.

"In all cuttings east of the Crow's Nest station, where composed of firm, dry compact soil, the slopes that were taken out less than the general slope of $1\frac{1}{2}$ to 1, have where they seemed weak been flattened and put beyond doubt as to their security and permanency. At present between Pincher and Cowley stations an outcrop of treacherous clay in the cuttings west of the South Fork of the Old

Man River is having a further reduction given to its upper slopes. West of the Crow's Nest station quite a number of cuttings that classed as being composed of cemented material have shown weaknesses from clay and filtering sand layers cutting into the general mass, which compelled the widening of bases and reducing the slopes as much as is possible to allow without affecting the mountain sides along which these cuttings lay. This class of work is practically finished. Where gumbo or running clay composed the soil that cuttings were made through the study of its action under different climatic changes to secure lasting results to the road-bed, had to be kept up throughout the season. The most obstinate case dealt with was in the Michel Loop where a steam shovel had to be worked all winter & well on to the summer. This cutting was properly drained on top of its slope, had its prism excavated below formation & its base made double the width called for by the terms of the contract, & had good slopes, yet under the continuous rain of the season it required attending to in order to keep its hill slope from being troublesome to the tie bearing supports at the centre line. In other cases cuttings composed of this soil have been successfully treated by having 12 in. sheet piling driven at the foot of the slope on the upper side of the cuttings resulting in a firm bearing for ballast and track; in some places it liberated filtering water below formation thereby lessening the danger of slips or disturbance under the ballast. Where the soils at formation continue to keep moist, excavations below grade to the depth of 3 ft. have been made & broken stone packed in over the full width of the bottom or base, with satisfactory results.

"Since finishing the ballasting of the line,

the steam plant with its train service has been at work mainly in cuttings composed of the gumbo soils. Their work has been used in widening cuttings at grade & cutting off the lower slope to formation along river shores, the benefit of this treatment giving the shortest & quickest drainage to fresher water in bad seasons by means of deep cross drains & drain boxes below formation. In a great many cases where embankments have had to be made with a percentage of the clay soils from the adjoining cuttings, 12 in. sheet piling has been driven at the top of the slope of the low side with successful results. In the finishing work that has been carried on lately has been the proper sloping and extra widening of gravel cuttings suitable for ballast, in some of them the widening has been all on one side of the centre line with a view of reducing still further the curvature in anticipation of swifter speeds, the material excavated being liberally used to improve earth embankments & give extra lifts to the permanency of the track. Greater widths than specified by the contracts have been given to embankments at points where the original surface in their vicinity has shrunk, cracked or subsided, caused evidently by the action of subterranean drainage. In reference to the finish of the cutting slopes, I may say that owing to the good work done this season & the severe weathering they have undergone, that they are now the natural ones necessary for safety & permanency & come within the meaning of the clause governing the pitch. In the greater part of the finishing work over the shrunken embankments carried on by trains hauling from pits of the best ballast, the lasting & substantial character is assured.

"Lately a survey examination of the mountain spur which is near the junction of the east

& south branches of Michel Creek, that forced the using of sharp curvature on the operated line, has been made with a view of benefiting the alignment & its feasibility in point of cost, the principal work to be done being an open cutting composed of mixed soils & rock spurs.

"Since the line has been put into operation, 12 spur sidings have been laid to lessen the cost of loading commodities at mines, sawmills & stock & hay centres. Since the branch line was built at Fernie to its mines, two others have been put under construction which will be put into operation before the end of the year. One runs from Cranbrook up the St. Mary's River to the Sullivan & North Star group of mines, & the other from Sparwood to the lately opened coal mines on the south side of the Michel Creek.

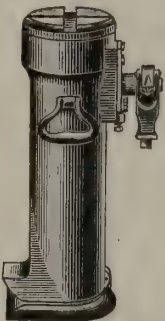
"Although the line has been in operation less than a year, coal mines at Fernie & Sparwood have been marketing their output & in a short time the newly developed Crow's Nest Lake coal mines will be in a position to ship its mined commodity.

"At different points on this railway seven sawmills are working steadily. The developing of mineral mines is being prosecuted with energy at many points near the railway, three of them are already shipping ore to the Nelson & Trail smelters & before the year is out as many more will be sending their output to these smelters. A concentrator of 150 tons capacity a day is now starting to work near Moyie City, another as well as a compressor are in course of erection in the same district. At Fernie, Cranbrook, Moyie City & Creston the population of these new business centres is established & in fast increasing, Fernie having at present about two thousand people."

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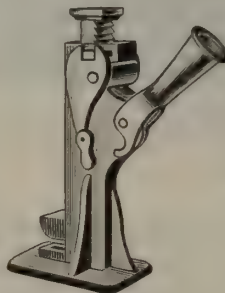
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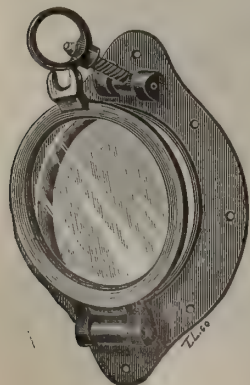
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C. P. R. LANDS.

The Canadian Pacific Railway lands consist of the odd-numbered sections along the Main Line and Branches, and in Northern Alberta and the Lake Dauphin District. The Railway Lands are for sale at the various agencies of the company in Manitoba and the North-West Territories at the following prices:

Lands in the Province of Manitoba average \$3 to \$6 an acre.

Lands in Assiniboia, east of the 3rd meridian, average \$3 to \$4 an acre.

Lands west of the 3rd meridian, including the Calgary District, generally \$3 per acre.

Lands in Northern Alberta and the Lake Dauphin District, \$3 per acre.

TERMS OF PAYMENT.

The aggregate amount of purchase money and interest is divided into ten instalments, as shown in the table below; the first to be paid at the time of purchase, the second two years from the date of purchase, the third in three years, and so on.

Interest on the outstanding purchase money is payable in one year, except in case of an actual settler who breaks up at least one-sixteenth of the land within that time. No rebate of interest is allowed on hay or grazing lands.

The following table shows the amount of the annual instalments on a quarter section of 160 acres at different prices under the new conditions:

160 acres at \$3.00 per acre, 1st instalment \$71.90, and nine equal instalments of \$60.
160 acres at \$3.50 per acre, 1st instalment \$83.90, and nine equal instalments of \$70.
160 acres at \$4.00 per acre, 1st instalment \$95.85, and nine equal instalments of \$80.
160 acres at \$4.50 per acre, 1st instalment \$107.85, and nine equal instalments of \$90.
160 acres at \$5.00 per acre, 1st instalment \$119.85, and nine equal instalments of \$100.
160 acres at \$5.50 per acre, 1st instalment \$131.80, and nine equal instalments of \$110.
160 acres at \$6.00 per acre, 1st instalment \$143.80, and nine equal instalments of \$120.

DISCOUNT FOR CASH. If land is paid for in full at time of purchase, a reduction from price will be allowed equal to ten per cent. of the amount paid in excess of the usual cash instalment.

Purchasers paying any instalment, or more, one full year before the date of maturity, will be allowed a discount on the amount of the instalment or instalments so paid at the rate of six per cent. per annum.

Interest at six per cent. will be charged on overdue instalments.

Write for maps and full particulars.

L. A. HAMILTON, Land Commissioner,

F. T. CRIFFIN, - Asst. Land Commissioner,

WINNIPEG.

Notice is given that application will be made by the C.P.R. Co. to the Railway Committee of the Privy Council for approval of a plan showing the route of a tramway to be acquired from Kimberley, on the North Star branch of the B.C.S.Ry., southwesterly to the North Star Mine, of about 1½ miles.

Work is progressing rapidly on the Co.'s dock at Balfour on the west arm of Kootenay Lake.

Arrowhead & Kootenay Lake Branch.—On May 8 we were informed that no decision had been arrived at as to the work to be done this year. Grading was completed last year for 15 miles from Lardo, the southern terminus, & work was opened up for 20 miles further. (Dec., '99, pg. 350.)

Pacific Division.—A large amount of work will be done this season. Six steel truss bridges will be erected in the Kicking Horse canyon & on Mountain Creek; in addition there are in course of erection at Glacier & down the eastern slope of the Selkirks stone arches with spans of 60, 50 & 25 ft. respectively. An improved station will be constructed at Golden with additional sidings. This station will be a small first-class one, something like the buildings put up at Three Forks & Greenwood, on the Columbia & Western Ry. extension, with the addition of a section for the Commercial Telegraph Department, similar to what there now is at Donald, it being the intention to remove the telegraph staff from Donald to Golden as soon as the new building at the latter place is completed. All crossing sidings will be extended to a uniform length of 2,000 ft. clear. The filling of trestle work will be prosecuted vigorously, 4 steam shovels being employed all season in addition to numerous air dump cars. Masonry & box culverts are being constructed to provide waterways at bridges now being filled. Ballasting & improvements on track will be done, some 50 miles of new & heavier steel being laid. At Revelstoke a compressed air plant will be added for use in the shops & with connections in the yard for the purpose of testing air on cars, doing away with the necessity of detaining engines for this purpose upon the arrival of trains. There will also be erected there a 70-ft. turn-table, in place of the one now in use, & elevated coal chutes. The Rogers Pass station, shops & buildings will be removed a mile west of the present site & near the summit of the Selkirks. Small bridges between Golden & Palliser are to be done away with. The work commenced last year of renewing snow sheds will be continued until the greater portion of them have been replaced. Considerable work will be done cutting out trails for the summer resorts of Glacier & Field; from the latter a trail is to be cut to Wapta Falls, 12 miles.

The Vancouver & Lulu Island Ry., from Vancouver to the north arm of the Fraser River, 5½ miles, now under construction as a subsidiary line of the C.P.R., is to run entirely by electricity. Ordinary motor cars will be used both for passenger & freight, at any rate until the freight traffic assumes such proportions as will necessitate other equipment being put on. (April, pg. 111.)

Blessed is the man who expects much, even though he be disappointed! The colonist car fare for the 2,180 miles over the C.P.R. from Halifax to Winnipeg, is £2 10s. The longest consecutive railway journey in which the Londoner can indulge is from Euston or King's Cross to Wick, in Caithness. That is 755 miles, & the 3rd-class fare (no colonist car, mind you, with its sleeping berths) is £2 13s. 3½d. On this scale the fare from Halifax to Winnipeg should exceed £6 instead of £2 10s. Yet an intending emigrant writes to the C.P.R. Co. in London to know whether his £2 10s; ticket will not include "suisine" during the journey!—Canadian Gazette.

RAILWAY DEVELOPMENT.

Projected Lines, Surveys, Construction, Betterments, Etc.

Algoma Central.—Under legislation passed at the recent session of the Ontario Legislature this Co. is to receive a land grant of 7,400 acres a mile for 200 miles of railway. In return the Co. binds itself to develop at least 40,000 horse-power at Sault St. Marie in addition to that already developed; to erect smelting & reduction works with a 300-ton daily capacity; to erect a pulp mill, in addition to that at the Sault, with a daily 50-ton capacity; to establish immigration offices at Toronto & in Great Britain; to place upon its lands each year for 10 years at least 1,000 male settlers aged eighteen or over; to establish & maintain not less than 4 steel ships of 2,000 tons each freight capacity for traffic between Michipicoton & the Sault. None of the pine timber nor spruce pulpwood on the land granted shall be exported in an unmanufactured condition. The Co. shall complete in 2 years chemical works suitable for using 5,000 horse-power for their operation. The Co. shall forfeit all right or claim to any of the lands granted in the event of failure to comply with the terms of the agreement. Settlers already on the land granted shall not be disturbed. The rates for passenger & freight traffic charged by the railway shall be subject to the approval of the Lieutenant-Governor-in-Council. (April, pg. 111.)

D. McGillivray, of Vancouver, B.C., has secured the contract for building the Co.'s ore dock at Michipicoton. It is said it will cost \$200,000.

The Canada Atlantic has completed its trestle near Cache Lake. The tracks at that point have been diverted for improvement, the old wooden trestle removed & masonry piers now support a steel superstructure. The bridge is about 500 ft. long & 60 high.

The Co. will probably erect a paint shop in connection with its buildings at Ottawa East. The proposed structure will be about 300 x 70 ft. In addition to the painting department it will contain room for construction purposes & will materially add to the car building facilities of the road. It is likely that the shops at Elgin st. will be discarded in the near future in order that all the manufacturing buildings may be adjacent to each other.

See under head "Central Counties Ry." on this page.

Canadian Northern.—The Ontario & Rainy River Ry. & the Manitoba & South-eastern Ry. having been amalgamated with this line matters relating to them will in future be dealt with under this heading.

D. D. Mann recently stated that about 250 miles of the system between Port Arthur & the Great Saskatchewan will be built this season.

On May 1 we were advised that track had been laid on the Ontario & Rainy River section on the first 40 miles west of Stanley to Lake Shebandowan, and that ballasting with a steam shovel was in progress for 60 miles from the end of track. The heavy work was reported as about finished, & the grading generally about 75 % finished. Piles are all driven on the first 80 miles, and there need be no delay in laying track to the end of the first 100 miles from Stanley as soon as rails can be got. (April, pg. 115.)

On the Minnesota & Manitoba section, between the Manitoba-Minnesota boundary & Rainy River, grading is going ahead & will be pushed to completion as soon as possible. R. Fowler is engineer in charge. (April, pg. 114.)

On the extension from last year's terminus, 220 miles from Gladstone Jct., towards the Great Saskatchewan, a large number of men are at work and grading is being pushed

ahead rapidly. M. H. McLeod, formerly of the C.P.R. Engineering Dept., is engineer in charge. (April, pg. 111.)

Carleton & Miramichi.—C. L. B. Miles, C.E., recently made a reconnaissance survey for a line from the C.P.R. at Bristol, N.B., to Foreston. The line follows the Shickadehawk stream for about 4 miles & then climbs to a false summit 9 miles out. The real summit is 12 miles from Bristol on the St. John River, & beyond this real divide are the waters of the n. e. branch of the Miramichi river. M. Welch, the promoter, owns a sawmill at Foreston, & a valuable tract of hardwood timber in that place. Glassville, 16 miles from Bristol, is an important village on the line. The Co. procured a charter from the N.B. Legislature in March & is applying for a Dominion subsidy. (Mar., pg. 77.)

Central Counties.—The subsidy granted at the recent session of the Ontario Legislature to this Co. at the rate of \$1,200 a mile for about 7 miles between Rockland & Clarence Creek is not for a further extension, as a line is already constructed between the two points mentioned & is leased to the Canada Atlantic Ry., with the rest of the line from South Indian, & is operated as the C.A.R. Rockland Branch.

Central Ontario.—The directors do not appear to have come to any decision as to the extension of this line from Bancroft to the C. A. Ry. between Madawaska & Whitney, for which the Ontario Legislature granted a bonus at its recent session. (April, pg. 111.)

Great Northern, U.S.A.—The Cascade tunnel approaches completion, it being confidently expected that trains will be running through it by Nov. 1. It will do away with more than 12 miles of switchback & save nearly 1½ hours between St. Paul and the Pacific Coast—time that is now spent in climbing the Cascade Mountains. In a recent interview, Superintendent of Construction A. L. Andrews, said that the work was begun in Jan., 1897, and that all previous records in tunneling have been broken. Two camps are being worked, one at each end. The length of the tunnel will be 13,253 ft. They are now 4,700 ft. on the Wellington, & 4,300 ft. on the Cascade end. This leaves 5,253 ft. yet to be done. "We are working 750 men," he says, "& are driving about 10 ft. per day, at each end. Three shifts of 8 hours each work from either end, employing 14 drills each, & we are boring the hole by the bench, sub-bench & heading process. The hole will be uniform in size all the way through, 24 ft. high & 20 ft. wide. We are following up the drills with the concrete work; so that shortly after the hole is through, this portion of the work will be finished. There are 70 men on each shift to do the tunneling, about 150 employed at concrete work, & about 50 engineers and helpers." The highest point from the roof of the tunnel to the pinnacle of the mountain is 2,300 ft. In Nov. last 527 ft. were cut—which beats the best world's tunnel driving record, made at Stampede on the Northern Pacific, by 2 ft. The best week's work was 76 ft., which also is a record breaker. The total cost will be in the neighbourhood of \$3,000,000. As yet no one knows, except possibly Mr. Hill, how trains will be operated through the tunnel, but it is quite probable that eventually they will be run by electricity.

The Greenwood-Phoenix Tramway Co. having been incorporated under the B.C. Tramway Act, the preliminary survey for the line has been commenced. It is said the estimated cost of the line between Greenwood & Phoenix is about \$150,000, & for the whole line, including branches, about \$500,000. (Dec., '99, pg. 359.)

The Gulf & Manitoba Ry. is not, as its name would imply, a Canadian line. Its proposed termini are Duluth & Kansas City.

Kamloops Lake to Cariboo, etc.—Bodwell & Duff, solicitors, Victoria, give notice of application to the B.C. Legislature to incorporate a company to construct & operate a railway from, at or near, the outlet of Kamloops Lake, to the plateau of the Bonaparte River; thence to the Cariboo waggon road, near the 100-Mile House; thence to Williams or Antler Creek, Cariboo District; with a branch line to the confluence of the Quesnelle & the Fraser Rivers, & with other powers.

Lake Erie & Detroit River.—E. Johnson, C.E., representing the Dominion Department of Railways, has gone over the proposed route of this line between Ridgeway & St. Thomas, the Minister of Railways having been asked to cause the line to pass through the southern part of the county instead of paralleling the M.C.R. (April, pg. 114.)

Newfoundland.—R. G. Reid is interested in the erection of a modern first-class hotel, especially adapted to tourist accommodation, which is being built in St. John. It will have a frontage of 200 ft., & a depth of 86 ft.

The Northern Colonization Ry. Co., incorporated by the Dominion Parliament in 1899, has a subsidy from the Dominion of \$3,200 a mile for building 22 miles from the terminus of the C.P.R. Labelle branch at Labelle, Que., northwesterly to Nomingue, via Notre Dame de L'Annonciation, & also a subsidy from the Quebec Legislature of \$60,000, payable in 12 annual payments of \$5,000 each. We are advised that it has not yet been decided whether work will be commenced this year. Hon. J. D. Rolland, Montreal, is President of the Co.

Ontario, Western & Hudson's Bay.—R. Jaffray, J. K. Kerr, & others representing this

Co., waited upon the Ontario Premier recently & asked that the Government permit the transfer of \$1,000 a mile from the subsidy granted the Co. last session in order to secure the construction of a waggon road from Missanabie, on the C.P.R., to Moose Factory, Hudson's Bay. The Co. proposes if the application is acceded to, to run a weekly stage for five years from Missanabie to Hudson's Bay. In winter time sleighs will be run as far as Moose Factory. During the summer months a coach will travel to the head of Moose River, & from this point the Co. will operate two steamers to Moose Factory. The Premier promised a consideration of the application.

Ottawa & New York.—A recent press item stated that the car shops will be removed from Santa Clara, N.Y., to Ottawa, Ont., in a few months. We were officially informed on May 11, that the matter had not been decided & possibly would not be for a month or so thereafter.

Pontiac & Pacific Jet.—Work will soon be resumed on the extension of the line from Aylmer to Hull, which was built last year to Deschenes. (Feb., pg. 43).

Prince Edward Island.—On May 16, the wife of the Lieut.-Governor turned the first sod on the Belfast & Murray Harbor branch, on Mutch's Point on the south side of Hillsboro river directly opposite Charlottetown. (April, pg. 115).

Quebec Bridge.—The Quebec despatch mentioned in our last issue respecting the awarding of contracts for the construction of this bridge has been confirmed. The contract with W. Davis & Son, Cardinal, Ont., calls for the masonry of 4 piers & 2 anchorages.

Their work is to commence as soon as the engineering details have been arranged, which is expected to be about June 15. It is said their contract will amount to over \$1,000,000, & will take 2 years to complete. A contract has also been arranged with a company in the U.S. for the steel & as soon as the detailed plans are ready an order will be placed with it for the steel anchorages which will form part of the foundation. The bridge will require 27,000 tons of steel. It will be 150 ft. above the river, so that ships with the tallest masts can pass under it, & it will be 76 ft. wide. It will be built in 3 spans, 2 of 600 ft. each, & the center cantilever span of 1,800 ft. This span will exceed in length, not merely the two great suspension bridges across the East River at New York, but the celebrated cantilevers which stretch across the Firth of Forth at Queensferry. The Brooklyn bridge measures a few feet under 1,600 ft. between the towers; the new East River bridge between the same points of measurement will be exactly 1,600 ft.; the 2 main spans of the Forth bridge are 1,710 ft. in the clear. The bridge will contain 4 railway tracks, driveway, & walks on each side. It will take 3 years to turn out the structural material & erect the bridge, & in order to do the work much new machinery will have to be secured, & some of the shops will have to be enlarged & equipped for the work. In order to ship the structural material to Quebec special cars will have to be made to hold the massive beams & girders. It is significant that in spite of the oft-repeated statement that all subsequent bridges of this magnitude would be constructed on the suspension principle, the new Quebec bridge is to be of the cantilever type. The old objection of lack of stability which formerly held



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against suspension bridges has disappeared. The principles of the suspension type are better understood, or are better applied, than they were, & with the improved materials that are now available, it is possible to give suspension bridges of the largest size all the rigidity which can reasonably be asked for. As regards the question of economy, the cantilever is by far the more costly type, the difference in cost increasing at a multiplying ratio of the increase in length. In view of this fact it is probable that the adoption of the cantilever type at Quebec was due to the local conditions.

The Quebec City Council has granted a subsidy of \$300,000 to the Bridge Co. The money will be realized on 30-year 3½% debentures, & the conditions will be the same as exacted by the Dominion Government. (April, pg. 116.)

Quebec Central.—The steel bridge over the Etchemin river at St. Anselme was carried away by ice April 19. A temporary wooden structure has been erected in its place pending arrangements for a permanent steel structure.

Quebec & Lake Huron.—J. M. Nicol, Detroit, Mich., who is promoting this line, writes us as follows: There is no charter in existence, but application has been made to the Dominion Parliament for one, which we trust may be granted this session. The projected road is intended as an air line from the lakes to tide water. Our eastern terminus will be at Quebec, & the western at or near French River, on Georgian Bay. The line will follow a straight line as nearly as possible, between these two points, crossing the St. Maurice River at or near Grandes Piles, passing near the village of St. Michel des Saints, on the Mattawin River, crossing the River du Lievre at or near Rapide de l'Original, the Gatineau River in the vicinity of the village of Riviere Joseph, & the Ottawa River near the village of Mattawa, & touching Lake Nipissing on the south. For the major part of the distance the road will run through a practically level country, traversing a wilderness covered for the most part with forests of hardwoods & spruce, interspersed with a little pine. The rivers are precipitous & rocky, & unless the timber comes out by rail, it must remain forever where it is. With the building of this road, this timber will find a market, & the Provinces will derive an immense revenue from the sale of their timber on lands lying in proximity to the road. Then, again, unlike pine lands, these tracts, when cleared, have great value for agricultural purposes, & the Mattawin valley, through which the road will run, contains millions of acres of fine farming lands, which will be opened up to settlers, & the intention is to make of it a colonization road of no mean proportions. The road will not be in opposition to any existing lines. It will not come within 50 miles of either Toronto, Ottawa or Montreal, & consequently will not be a competitor for that business, nor for any other, excepting the through business, from Chicago, Duluth & the Northwest to tidewater, which is open to the world, & we should be no more of a competitor of the Canadian roads than of the American trunk lines & the canals for this business. (Mar., pg. 78.)

Rutland-Canadian.—We were recently informed that about 4½ miles of rock excavation & rubble embankment in the lake at various points along the line remain unfinished. In our Jan. issue a paragraph referring to this line read:—"The maximum grade outside of yard limits is 1' 30'." It is obvious that the word "curve" should have been used instead of "grade." (Jan., pg. 9.)

St. Mary's River Ry. & Colonization Co.—A bill is before the Dominion Parliament to incorporate a company under this name to build a railway from the Alberta Ry. & Coal Co.'s

line between Lethbridge & Stirling, Alberta, to the International boundary, also to convey or lease the line to the C.P.R. or Alberta Ry. & Coal Co., provided the Governor-in-Council consents.

The Salisbury & Harvey Ry. Co. is applying to the Dominion Parliament for power to build the following branch lines in New Brunswick:—From Turtle station to Baltimore, from Baltimore siding to Moncton, and from Baltimore siding to or near Watter's oil works, Hillsborough. Also for power to purchase the railway, franchises, &c., of the Harvey Branch Line Ry. Co., & the Alma & Harvey Ry. Co. (Mar., pg. 74.)

Toronto, Hamilton & Buffalo.—Contracts have been let for the construction of a spur of 3½ miles, starting from the main line near Trolley st., in the east end of Hamilton, & running northeasterly through the 2nd & 1st concessions of Barton township, thence westerly to between Wellington & Ferguson streets in the northwest part of the city, with a short spur to connect with the Hamilton Blast Furnace Co.'s siding. E. Goodale has the contract for grading, & M. A. Pigott the contract for the trestles over the Radial Ry. & Sherman Inlet, the work on these contracts to be completed on June 20 & May 15 respectively. (Oct., '99, pg. 297.)

Toronto Union Station.—In consequence of the absolute necessity of increased accommodation for handling baggage, it is probable that the baggage & express rooms on Station St. will be enlarged by building additions east & west.

Railway Committee of Privy Council.

A preliminary decision has been reached by the Railway Committee of the Privy Council, confirmed by the Governor in Council, on the complaint against the railway rates on coal oil. Following is the official announcement as made by the Government press:—"It will be remembered that about a year & a half ago the railway companies reduced their tariff on coal oil from Sarnia & Petrolea to Montreal & other points east which were open to competition by water. The rate originally charged from Sarnia was 35c. per 100 lbs. on oil, but after the Standard Oil Co. had acquired the refineries at Petrolea, & had re-established the business of refining at Sarnia, it prevailed upon the railway companies to reduce the rate to between 20c. & 21c. The reason assigned for this was that the Standard Co. was contemplating putting on boats for the carriage of oil to Montreal & other points accessible by water. At the same time the railway companies raised the rate from Table Rock, Suspension Bridge & other points in the U.S. to Montreal & other centres in Canada from 23c. to 35c. They justified their action in doing this by alleging that the rate was too low, & that in any case they desired to make up the loss which would be entailed upon them by the Sarnia reduction. The effect of this reduction from Sarnia & the increase at points along the Niagara border was to restrict the importation of oil from the U.S. in competition with the oil produced at Sarnia, & thus to give the Sarnia product the control of the Canadian market. Consumers of oil became very much incensed at this, & to it attributed the rise in the price of oil, as well as the discrepancy in the cost on the U. S. side of the line as compared with this. They lodged a complaint of illegal discrimination before the Railway Committee of the Privy Council against the railways. After several hearings & some delay, owing very largely to the requests of the complainants themselves, and their inability to arrange their case & secure evidence, the question has been finally determined against the railway companies. The Railway Committee came to the conclusion that the only practical remedy

available was to reduce the railway tariff on oil. They made a report & recommendation to Council accordingly. The effect is to leave the rate from Sarnia untouched, while the rate from U.S. points to points in Canada is reduced to the figure of 23c., as it originally was, based on mileage."

Passenger Traffic Matters.

The Chicago, Rock Island & Pacific Ry. has issued a folder about the through sleeper via this line between Chicago & San Francisco, which contains a map alternated with streaks of shade, up & down, indicating the country passed through in daylight & the sections traversed by night.

Commencing June 4, a through service will be run between Levis (Que.) & St. John, N.B., over the Quebec Central & C.P. railways, via Megantic, leaving Levis 6.45 p.m., daily except Saturdays, arriving at St. John 11.50 a.m., daily except Sundays, & leaving St. John 4.10 p.m., daily except Sundays, arriving at Levis 10.00 a.m., daily except Mondays. This time will be changed somewhat about June 25, when new time bill takes effect. First-class coach & sleeping car passengers will be carried in through cars without change between Levis & St. John. Rates from Montreal & points west to St. John, N.B., & points east will be the same as via C.P.R. short line through Maine; rates to points on C.P.R. direct line west of St. John, N.B., will base on Quebec or Levis, but not exceed St. John rates. Until Sept. 30th tickets from Montreal or west to St. John, N.B., or east or vice versa, reading via C.P.R. short line through Maine will be exchanged for tickets via Quebec & Megantic, provided C.P. coupon is so endorsed by selling agent.

Commencing June 11, the C.P.R. transcontinental train service will be very much quickened. The "Imperial Limited" trains will run daily between Montreal & Vancouver, crossing the continent in each direction in about 4 days. Westbound trains will leave Montreal 9.30 a.m., reaching Vancouver at 1.10 p.m. on the 4th day. Eastbound trains will leave Vancouver at 1.10 p.m., reaching Montreal at 6.10 p.m. on the 4th day. Service between Toronto & North Bay in connection with the above will be daily.

At Fort William the new trains will connect with the Co.'s Upper Lake steamships plying tri-weekly between Fort William, Sault Ste. Marie & Owen Sound, & at Moose Jaw close connections will be made with the trains of the Soo-Pacific route from & to St. Paul & Minneapolis, shortening the time materially between those cities & the Pacific Coast. Trains on the Crow's Nest branch will connect closely at Dunmore Jct. with the Imperial Limited, east & west bound, affording the most direct service from & to the Kootenay country. There will be a through sleeping car between Winnipeg & Kootenay Landing, to & from which passengers for & from points east of Winnipeg will be transferred at suitable hours. Charge for berths on Co.'s steamers between Nelson & Kootenay Landing \$1 each. Dining cars will be run between Montreal & Banff, meals west of that point being supplied at the Co.'s chalet hotels, Field, Glacier & North Bend. Dining cars will be run on Crow's Nest branch. Passengers holding 1st-class tickets between Dunmore Jct. or points east, & Revelstoke or points west on or reached via the main line, will be given the option of travelling either via the main line through Calgary & Banff, or via the Crow's Nest branch, Nelson & Robson, or via Nelson, Slokan City & Roseberry.

It is reported that the Wabash road, after paying employes by check for a long time, will resume the use of the pay car.

Ontario Railway Aid Conditions.

Following is the complete text of the "Act respecting certain railways," passed at the recent session of the Ontario Legislature, & numbered chap. 28:—

1.—(1) Every subsidy heretofore granted out of the Consolidated Revenue Fund of this Province in aid of any railway shall as to any part thereof which is still unearned, & all subsidies hereafter granted to any railway out of the said fund, in addition to all other lawful requirements shall be subject to any conditions which may hereafter be imposed by order of the Lieutenant-Governor in Council respecting the toll to be charged to persons known as "settlers" or "prospectors" using any such subsidized railway or any part thereof, in connection with their prospecting & settling in the district in this Province through which the railway runs, either for freight or passenger service, & in default of compliance with the said conditions, or any of them, there may be deducted & retained from any monies payable in respect of such unearned subsidy or hereafter granted subsidy such amount as the Lieutenant-Governor in Council may think proper, & the railway company or any assignee of a railway company claiming such subsidy shall not be entitled to receive payment of the same, or if such subsidy shall have been paid over prior to such default the company operating such railway shall forfeit such part thereof as may be determined by Order in Council, & the same may be recovered back from such company with full costs of action at the suit of the Attorney-General of this Province in any court of competent jurisdiction.

(2) The words "settlers" & "prospectors" shall respectively be construed to include any person who shall have produced evidence to the proper officer of the said railway that he is an intending settler or prospector, as the case may be, in the district through which such railway runs, which evidence shall be deemed sufficient if it complies with the requirements of any Order in Council in that behalf, & the said words shall also mean & include every member of the family of a settler or prospector residing with him using such railway, or any part thereof, in connection with such prospecting & settling.

(3) The expression "toll" shall include any rate or charge for any passenger, ani-

mal, carriage, goods, merchandise, matter or thing conveyed on the railway.

2. Every such unearned subsidy or hereafter granted subsidy, shall further be subject to the condition that the workmen, laborers, or servants employed in or about the construction & operation of the railway in aid of which such subsidy is granted, shall be paid such rate of wages as may be currently payable to workmen, laborers & servants engaged in similar occupations in the district in which such railway is constructed & operated & upon breach of such condition by the railway company there may be deducted & retained from any monies payable in respect of such unearned subsidy or hereafter granted subsidy such amount as the Lieutenant-Governor-in-Council may think proper, & in case the subsidy shall have been paid over before such breach, such part thereof as may be determined by Order-in-Council, may be recovered back from the railway company to

which the same was granted with full costs of action at the suit of the Attorney-General of the Province in any court of competent jurisdiction.

3. Every railway company receiving any subsidy either of money or of lands under any Act of the Legislature of Ontario, after the passing of this Act, or any railway company heretofore receiving any subsidy either in money or in lands, part of which is still unearned, shall, as far as practicable, construct, equip & operate their lines of railway with railway supplies & rolling stock made, purchased or procurable in Canada, providing such railway supplies can be obtained as cheaply and upon as good terms in Canada as elsewhere, having regard to quality & price, & unless the Lieutenant-Governor-in-Council shall approve of the same being procured elsewhere.

4. No person shall be employed in the construction of any railway receiving a subsidy



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either in money or in lands who is a citizen or subject of any country having an Alien Labor Law which practically excludes Canadians from employment on the public works of such country or in other works therein. Any company employing laborers as aforesaid, shall be liable to a penalty of \$20 per day for each person so employed during the whole period of such employment.

5. This Act shall be read with & as part of The Railway Act of Ontario, & of any Act respecting aid to railways passed during the present or any future session of this Legislature.

The operators on the Intercolonial have settled their differences with the management. A new schedule was given them in July, 1899, & they claimed that some of the terms were either couched in ambiguous language, or upon important concessions required, the document was silent. Early in Aug., '99, General Manager Pottinger issued a circular notifying them that employees temporarily out of the service from any cause whatsoever, would forfeit their wages for the length of time they were absent. This was objected to & in Mar. a delegation waited on Mr. Pottinger & asked for two weeks' holiday yearly with full pay, & that train dispatchers be placed on schedule. Complaint was also made that some men had been promoted out of seniority. President Powell & 1st Vice-President Dolphin, of the Order of Railroad Telegraphers, went from St. Louis to Moncton & Ottawa in connection with the matter, & after numerous interviews with Mr. Pottinger & the Minister of Railways, Mr. Dolphin made the following announcement: "The matters under dispute between the I.C. R. & its agents & operators have been adjusted to the complete satisfaction of the men. The settlement includes the restoration of the two weeks' vacation yearly with full pay."

ELECTRIC RAILWAYS.

Maritime Provinces & Newfoundland.

Fredericton, N.B.—F. B. Coleman is endeavouring to arrange for the construction of an electric railway in Fredericton.

Halifax Electric Tramway earnings, not including lighting receipts:—

	1900	1899	Increase.
Jan.	\$11,475.40	\$8,704.78	\$2,770.62
Feb.	8,982.41	7,531.43	1,450.98
Mar.	9,765.83	8,576.83	1,189.00
April.	9,359.13	8,461.27	897.86
	\$39,582.77	\$33,274.31	\$6,308.46

Quebec Electric Railways.

Hull Electric Co.—A special meeting has been called to confirm agreements with the Deschenes and the Ottawa electric companies. It is said that the Hull Co. will absorb the Deschenes Co., or in the event of the two companies remaining separate, the Hull Co. is to have equal privileges in using the Deschenes water power for the purpose of generating electrical power. The personnel of the two companies is practically the same, and the amalgamation, if effected, will be settled for by the Hull Co. issuing paid up shares to the Deschenes Co. in return for the water power. As to the agreement with the Ottawa Electric Co., it is said that litigation as to rights to operate in Hull are to cease, & that a definite understanding has been reached as to the basis of future operations.

The Montreal Park & Island Ry. has remodelled and painted all its large open summer cars, making them very handsome in appearance. It has also built additional cars to add to its summer rolling stock. The Company has also inaugurated a freight and parcel

delivery over all its lines, to and from any part of the city.

Montreal St. Ry.—The gross earnings are:

	1899-1900.	1898-1899.	Increase.
Oct.	\$145,877.20	\$133,619.63	\$12,257.57
Nov.	133,489.12	125,125.09	8,364.03
Dec.	137,681.19	127,768.38	9,912.81
Jan.	136,086.33	125,276.04	10,810.29
Feb.	122,509.04	113,838.02	8,671.02
Mar.	127,212.18	123,754.11	3,458.07
April.	133,475.42	130,405.97	3,069.45
	\$936,331.08	\$879,787.24	\$56,543.84

Judge Davidson has decided against the City of Montreal in its suit against the Co. to recover \$21,050.87 which the City alleged was due for a stated period for percentage on the gross earnings of the Co. The Judge stated that the action depended upon the answer which must be given to the following question: "Is the defendant bound to pay to the City a percentage of the gross revenues earned by those parts of its lines which are situated without the limits of the City of Montreal?" The Judge, having quoted clauses of the contract between the City & the Co. & the by-law, said that these required the Co. to pay the stipulated percentages "upon the total amount of its gross earnings arising from the whole operation of 'its said railway.'" The interpretation to be given to the expression "its said railway" was found in section 1 of the by-law & article 1 of the contract which declare that the Co. shall establish & operate an electrical railway "in the city." This was a geographical limitation, so precisely expressed that there is no room for inference or presumptions to destroy the plain meaning of plain words. Did doubt exist, the contract would need to be interpreted, as regards the payment of percentages, in favor of the Co. which has contracted the obligation & in like manner uncertainty with respect to the extent of concessions granted by the city would be resolved in its favor. It is furthermore a well-known interpretative principle that a contract extends "only to the things concerning which it appears that the parties intended to contract." The outside lines of the Co. are operated by virtue of franchises which the local municipalities have conceded & for which they exact consideration in one form or another. The City of Montreal can give no title in respect of them, & while no doubt competent to exact a tribute on their earnings in payment of its own concessions would need to express that right in language of great certainty. Much stress was laid upon the facts that the offices, shops & power houses of the Co. must be located in Montreal. This provision only applies to the lines covered by the by-law & contract that is to lines "in the city." The Co. is fully entitled to locate shops & power houses for outside lines wherever it chooses. Suppose, for example, that defendant absorbed the railways of the Park & Island Ry. Co. with their full equipment of power houses & other working accessories, situate far beyond the city limits, can it be maintained that these would need to be abolished & all motive power drawn from within the city? Reference to these outside independent railways which run to Lachine, the Back River & elsewhere, suggests an illustration which may be effectively used in this case. As is well known a separate fare is collected for the distance from the city limits to Lachine or to the Back River. To sustain plaintiff's present pretensions would be to commit the Court to the doctrine that these outside collections would be subject to the city's import. At the argument, the judge asked counsel what the Co.'s obligations would be if it built a line to St. Johns or to Longueuil, or even to Quebec. Counsel for the City could not, in the interest of consistency, avoid the assertion that according to the true intentment of the 36th article of the contract, a percentage of the earnings of all these lines would be exactable. Marked difficulty was felt in maintaining a

like position, if a gap or a half-mile, or 100 ft., or even a single rail separated the systems within & without the city. These were features of the controversy which deserved serious consideration & required a practical solution. A passenger steps into a car in Montreal. His one fare carries him to any point, either in the city, or, if he wills, in any contiguous municipality to which the line extends. "We may be certain," continued the Judge, "that the extra distance is not travelled for nothing, but it is a plausible argument that this fare, certainly paid & apparently earned within the city limits, should be, to its full extent, subject to percentage. Take, however, the converse of this example: A passenger steps into a car in, say, Westmount, and in manner accustomed forthwith pays his fare. He may not enter the city at all, or he may, if he chooses, travel over its lines without extra charge. Thus here is compensation of both traffic & argument. The loss to the city is nominal rather than real, for every mile of suburban roads indirectly adds to the revenue on which percentages are payable." The exact amount to which the city was entitled was ascertained by an easy process of railway arithmetic certified as correct by Messrs. Ogden & Robb. These experts certified to the correctness of the method employed. Giving effect to these opinions, the Judge then dismissed the City's suit with costs.

The Quebec Ry. Light & Power Co. does not publish its monthly earnings, but furnishes quarterly statements to the city of the railway earnings within the city limits, exclusive of the earnings in the outside municipalities. The car earnings in the city for Oct., Nov. & Dec. last were \$30,336.

Ontario Electric Railways.

Fort Erie to Chippawa.—The Ontario Legislature has passed an act confirming the agreement between the commissioners for the Queen Victoria Niagara Falls Park & the Fort Erie Ferry Railway Co. respecting the construction of this line. (Apl., pg. 123.)

Galt, Preston & Hespeler Street Ry.—We are officially informed that John Patterson, of Hamilton, of the Cataract Power Co., etc., has made an agreement to purchase a controlling interest in this line by June 1, & has made a payment on account.

Hamilton Consolidated Lines.—The wages of the motor men & conductors on the Hamilton & Dundas line have been increased about 10%.

The night car which is being run on the Hamilton St. Ry. as an experiment is said to be paying expenses.

A communication from J. Patterson, on behalf of the Cataract Power Co. was recently submitted to the Hamilton City Board of Works. Among the changes asked are the granting of permission to the Hamilton & Dundas Ry. to run freight & express cars, the track on Aberdeen avenue to remain in its present position, permission to run the cars on Herkimer & James streets, & to put in a curve at the corner of James & Gore streets to connect with the Radial Ry., & to remove the tracks on Hannah, McNab, & Main streets. It is stated the Co. proposes to extend the Radial Ry. to Oakville. The Co. asks permission to put in a curve at Barton street & Birch avenue, so as to extend the tracks to the smelting works, & to have the privilege of running these cars on Barton street instead of Wilson street, also to put down "T" rails on Sandford avenue, and extend the track above King street, to put in a loop at the foot of Stuart street to deliver people on the platform of the G.T.R. The Co. proposes to build a loop line from Wentworth street via Ida street & Sherman avenue. The Co. asks that no mileage be

charged on the new lines, that the mileage on the Sandford avenue line be remitted, that the assessment on the general system be fixed for a term of years, and that there be a rearrangement of the percentage.

London St. Ry.—On May 1 the Trades & Labor Council declared a resumption of the boycott against this Co. which had to be abandoned last winter. It is not expected to meet with success.

Metropolitan Ry.—The fight between this Co. & the City of Toronto over the proposal to connect the Co.'s line with the C.P.R. at North Toronto, for which permission was asked of the Ontario Legislature, resulted in a compromise. The Co. consented to withdraw the bill on the condition that Mr. Hill, M.P.P., would withdraw until next year the clause in his street railway amendment act, which stipulated that electric roads must not charge more than 2c. a mile. Mr. Hill opposed the Co. during all its appearances before the Legislature last session, & when he introduced his street railway bill

it was known to be aimed at the Yonge st. line. Another provision of the settlement is that the Government will next session introduce a measure repealing all present legislation, and making general laws for electric railways.

The Niagara Gorge R.R., between Lewiston & Niagara Falls, N.Y., was reopened May 1.

The Ottawa Electric Ry. Co. came out of the recent Hull-Ottawa fire in very good shape. The Co.'s old power house was destroyed, but the new power house, in which a 2,000 h.p. generator had just been installed, received only slight damage to the roof. The generator itself was uninjured, & is in full operation. The Co.'s service was interrupted for only 3 or 4 hours. The cars were in operation on the evening of the day of the fire. In the burned district the only machinery moving or able to move on the day after the fire was that in the Electric Ry.'s new power house & two of the power houses of the Ottawa Electric Light Co. It is likely

that the Electric Ry. Co. will duplicate its present new power house on the site of the old power house.

Preston & Berlin Street Ry.—We are officially informed that the work on this line will be started during May, with the intention of completing it this year. (April, pg. 125.)

St. Thomas Electric Ry.—M. B. Thomas, formerly Manager of the Hamilton & Dundas Electric Ry. has been appointed Manager of this line.

Toronto Railway.—Gross earnings:

	1900	1899	Increase.
Jan.....	\$113,703.96	\$95,690.12	\$18,013.84
Feb.....	103,054.19	91,860.10	12,094.09
Mar.....	117,631.21	103,234.88	14,396.33
April.....	107,198.63	95,212.37	11,986.26
	\$442,487.99	\$385,997.47	\$56,490.52

Verner to Lake Temagaming.—It is said a survey has been commenced for an electric railway from Verner on the main line of the C.P.R. 34 miles west of North Bay to Lake Temagaming, a distance of about 30 miles, through a beautiful country, which should become a favorite resort for tourists.

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NOTICE is hereby given that an agreement between the Ontario & Rainy River Railway Company & the Canadian Northern Railway Company (the company formed by an amalgamation between the Manitoba & South-Eastern Railway & the Canadian Northern Railway Company), dated the 3rd day of May, A.D. 1900, for an amalgamation of those two companies under the name of "The Canadian Northern Railway Company," was duly entered into pursuant to the provisions of chapter 80 of the Statutes of Canada for the year 1899, & that such agreement has received the sanction of the Governor in Council by Order in Council dated the 4th day of May, A.D. 1900, & that a duplicate of said agreement was on the 4th day of May, A.D. 1900, filed in the office of the Secretary of State of Canada, and this notice is given pursuant to subsection (3) of section 4 of said Act.

J. M. SMITH,
Secretary,
The Canadian Northern Railway Company.

NOTICE is hereby given that an agreement between the Manitoba & South-Eastern Railway Company & the Canadian Northern Railway Company, dated the 28th day of April, A.D. 1900, for an amalgamation of those two companies under the name of the "Canadian Northern Railway Company," was duly entered into pursuant to the provisions of chapter 75 of the Statutes of Canada for the year 1899, & that such agreement has received the sanction of the Governor in Council by Order in Council dated the 2nd day of May, A.D. 1900, & that a duplicate of said agreement was on the 3rd day of May, A.D. 1900, filed in the office of the Secretary of State of Canada, and this notice is given pursuant to section 3 of said Act.

J. M. SMITH,
Secretary,
The Canadian Northern Railway Company.

CANADA SOUTHERN RAILWAY COMPANY.

THE Annual General Meeting of the Canada Southern Railway Company, for the election of Directors, & other general purposes, will be held on Wednesday, the 6th day of June, 1900, at the hour of eleven o'clock in the forenoon, at the Company's Head Office in the City of St. Thomas.

NICOL KINGSMILL,
Secretary C. S. Ry. Co.

May 1st, 1900.

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Ontario Electric Railway Legislation.

The Act respecting mortgages by electric railway or street railway companies, of which a summary was given in our last issue, pg. 123, was passed by the Ontario Legislature & has become law as chap. 32 of the statutes of 1900.

The Act to amend the Street Railway Act, chap. 31 of the statutes of 1900, is of such importance that its provisions are given in full as follows :—

1. Section 18 of the Street Railway Act is amended by adding thereto the following sub-sections :—

(4) The company, when operating any portion of its line by means of electricity, shall use on the front of each motor car used by such company a fender of a class to be approved by the Engineer of the Department of Public Works of Ontario. Provided that the company shall not be found to furnish or use any such fender until the expiration of the period of six months after the said engineer shall in writing have signified his approval as aforesaid.

(5) The company when operating any motor car upon its railway shall have at least two men engaged thereon, so as to collect the fares & also to look after the public safety, & stop the car for intending passengers.

2. In case any street railway, electric or other railway, has been heretofore, or shall hereafter be, constructed in any municipality under an agreement with the council thereof, or of the council having the control of the road, street or highway therein, & the locality, or any part of the locality in which said road has been, or is constructed, is subsequently to the making of such agreement, removed from one municipality to another, or the road, street or highway along which the said street railway has been or shall be constructed, has ceased to be owned or controlled by one municipality, or the council thereof, or by any council having the control of such road, street or highway, & has become vested in or has been placed under the control of another municipality or the council thereof, then so far as such agreement relates to the maintenance & repair of the track & roadbed of the railway or the remaining portions of the highway or highways over which the railway is operated, & to the removal of snow & ice from the company's track & the disposal of such snow & ice upon the highway or elsewhere the corporation of such last mentioned municipality & any officer or person designated by by-law thereof shall be substituted for & shall have all the right & may exercise all the powers & be subject to the same duties as the municipal corporation party to such agreement & any officer or person named therein & charged with the performance of any duty in respect to the matters aforesaid thereunder.

3. The conductors of every street railway, electric railway or other railway company heretofore & thereafter incorporated & operated by any other motive power than steam shall carry & exhibit if required in every passenger car a table of tolls or fares to be collected or taken for the carriage of any passenger.

Electric Lines in Western Canada.

British Columbia Electric Ry.—A general meeting was held in London, Eng., April 25, to consider a resolution for increasing the capital from £370,000 to £450,000 by the creation of 8,000 new preference shares of the nominal value of £10 each, to rank *pari passu* with the 12,000 preference shares of the like nominal value already issued. R. M. Horne-Payne presided, & in proposing the resolution, said that practically the whole of the Canadian shareholders, as well as a large number of English shareholders, had sent

their proxies to the board. It was especially gratifying to receive the support of the shareholders in Canada, as they had opportunities of judging of the merits of the enterprise, & of the way in which the management had fulfilled their duties, which the shareholders in this country could not have. The present demand for extra capital was entirely owing to the great success which the Co. had met with, both in the railway & the lighting departments. The number of lights which the Co. were supplying on April 1, 1899, was 32,000, whereas at the end of Feb. 1900, it was 45,000, & there was little doubt but that the figure was 46,000 on Mar. 31, the date at which the financial year of the Co. ended. The board were not in full possession of particulars with regard to the past financial year, but it would not be far from the mark to say that the net earnings amounted to \$200,000, approximately £40,000, as compared with £33,000 in the previous year. On the last occasion on which the capital was increased, in Nov. 1898, it was necessary to apply to the public, but this time there would be no need to do so, as the shareholders would themselves take up the new shares. The works undertaken with the proceeds of the last issue of preference capital were considerably delayed in their completion by the great activity in the iron & steel trade, which rendered it most difficult to get orders fulfilled within a reasonable period. The plant which the Co. now had was amply sufficient to deal, during the summer months, with the business which had been accepted, but the demands for lights was steadily growing. It was, therefore, necessary to provide against the heavier demand which would be made on the Co. in the winter, & a little more electric plant was also wanted on the railway. Provision having been previously made for additional steam power, all that was now required was the actual electric lighting machinery. The expenditure necessary to enable the Co. to meet the demands of the coming winter was calculated at about £16,000, which was just 5% on the issued capital, but the directors had considered it prudent to ask for power to increase the capital by £80,000, from time to time, as business improved. He had no doubt that the profits would increase in proportion to the advance in the capital. The resolution was carried unanimously.

The Co.'s net earnings for Feb. were \$11,620, against \$9,237 in Feb., 1899. The net earnings from April 1, 1899, to Feb. 28, 1900, were \$184,683, against \$150,212 for corresponding period.

The pay roll of the Co. averages \$10,000 a month.

The Co.'s new electric power house in Vancouver is about completed. The main building is 90 x 120 ft., with roof supported on steel trusses, 96 ft. span, thus leaving the floor free from all posts & obstructions. The following machinery has been installed: One direct connected unit for operating the railway lines. This unit consists of a cross compound engine capable of developing 800 h.p. The generator is attached directly to the engine & consequently the armature revolves at the same speed as the engine, 90 revolutions a minute. This unit is capable of supplying a current to operate 50 cars. Directly alongside this unit a similar engine is directly connected to a 10,000 light incandescent alternating current generator. A 700 h.p. double tandem compound Wheelock engine will supply power to the arc light dynamos & will also carry the incandescent lights & power station after midnight. While the average load of this power station closely approximates 600 h.p. at the peak of the load the output can be increased to over 3,000 h.p. The new machinery is all of modern design. The condensing apparatus is situated in the centre of the building & ample space is left for future extensions. Condensing water is obtained from False Creek, & during low tide sufficient water is

impounded by a dam, to run through from one tide to another. The building is practically fire-proof, & concrete floors, marble switch boards & all other accessories usually found in a modern power plant. The cost of the new plant & buildings exceeds \$150,000.

The Co.'s new station & power transformer building on Columbia & Front streets west, New Westminster, is also about finished. On stone & pile foundation the building is of brick, metal covered, & encloses an area of 132x66 ft., about half of which is enclosed for offices & the transformer plant, the other half running right through from Columbia to Front st. being used for car storing, & general transportation under cover & at the Front st. end are two 40 ft. pits for car repairing. The front of the depot on Columbia st. is well lighted & conveniently arranged with various offices of liberal capacity. These are the superintendent's private office & ticket office, a room for the use of conductors & motormen, a general waiting room, 42x30 ft., & the Great Northern Ry. offices. The transformer room is 50x20 ft. The freight house is 70x20 ft. The roadbed on the street between the curved double tracks is solidly planked with 4 in. stuff & the front & back car entrances are furnished with sliding doors, so that the station may be closed up entirely when required.

It is said the Co. has made a proposal to the Vancouver Jockey Club regarding the construction of a race course at Central park, midway between Vancouver & New Westminster, an excellent place for race meetings.

Vancouver & Lulu Island Ry.—See pg. 143.

Winnipeg Electric St. Ry.—A. Mitchell, heretofore in charge of the Co.'s power house, has been promoted to the position of Electrical Superintendent.

"Scrap Iron Assessment."—A bill to abolish the system of assessment of plant, &c., of electric railways, telegraph, telephone & other companies was introduced at the recent session of the Ontario Legislature by a private member, but was rejected by the Municipal Committee by a large majority, the Premier having stated that a commission will be appointed to consider the whole question.

A high-speed electric railway is to be built between Brussels & Antwerp, 28 miles.

Electricity is to be tried on the Chemin de fer de l'Ouest, which is one of the principal steam railway systems of France. The Co. has decided to operate its suburban service from Paris to Versailles by electricity, abandoning the use of steam locomotives & substituting electric motors. The largest power station in France will be erected at Moulinaux, equi-distant between Paris and Versailles, to furnish the current which will operate these trains.

RAILWAY APPOINTMENTS, Etc.

Algoma Central.—It is said that G. H. Cook, heretofore engineer in charge of construction on the Southern Indiana, will take charge of extension work on the A.C.R.

Canadian Pacific.—W. B. Lanigan, Traveling Freight Agent, has been appointed Assistant General Freight Agent, with office at Toronto.

J. G. Taylor, one of the train despatchers at Cranbrook, B.C., who has had a large experience in & is thoroughly familiar with the standard rules, has been appointed as instructor in them. He is succeeded at Cranbrook by E. L. Chudleigh, one of the despatchers at Calgary, who in turn is succeeded at Calgary as a despatcher by Alex. Allan, for

the past few months chief clerk to the General Superintendent at Winnipeg, & previously for some 5 years Car Service Agent at Winnipeg, in charge of the Western division car records.

W. R. Baker, heretofore General Manager of the M. & N. W. Ry., which has been leased by the C.P.R. Co., has been appointed Executive Agent of the C.P.R. in Manitoba & the N.W.T., in connection with matters outside of the operation of the Railway & the Construction & Land Departments. His special duties will be designated by the President. This is the second appointment of this nature in the C.P.R. service, the first one being that of G. McL. Brown, who is Executive Agent for B.C.

D. G. Ross has been appointed Assistant Superintendent of the Brandon section & Manitoba branch lines, with headquarters at Winnipeg.

Central Vermont.—G. B. Reeve having resigned to retire from active business, the office of General Traffic Manager has been abolished. J. W. Loud, Freight Traffic Manager of the G.T.R., has also been appointed Freight Traffic Manager of the C.V.R., in charge of through freight traffic. Office at Montreal, P.Q.

J. Pullen having resigned to accept service with the G.T.R., J. E. Dalrymple, Division Freight Agent of the G.T.R. at Detroit, Mich., has been appointed General Freight Agent of the C.V.R. Office at St. Albans, Vt.

Chicago & Grand Trunk.—C. M. Hays, as General Manager for the receivers, has issued a circular announcing that G. W. Vaux, Assistant General Passenger and Ticket Agent of the G.T.R. at Chicago, has been given charge of the passenger traffic for the

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receivers, succeeding G. T. Bell, promoted in the G.T.R. service.

Cumberland Ry. & Coal Co.—E. Laflamme, heretofore Assistant to the General Manager & General Storekeeper, has been appointed Assistant to the General Manager & Acting Superintendent of Railway; R. Aikman, heretofore Station Agent at Parrsboro, has been appointed Railway Accountant; E. A. Wallace has been appointed General Storekeeper.

Grand Trunk.—G. B. Reeve having resigned, to retire from active business life after a period of 40 years' service with this Co., the office of General Traffic Manager has been abolished. J. W. Loud, General Freight Agent, has been appointed Freight Traffic Manager, & W. E. Davis, General Passenger & Ticket Agent, has been appointed Passenger Traffic Manager.

G. T. Bell, First Assistant General Passenger & Ticket Agent at Chicago, has been appointed General Passenger & Ticket Agent of the entire System, with headquarters at Montreal.

G. W. Vaux, Assistant General Passenger & Ticket Agent at Montreal, succeeds Mr. Bell, as Assistant General Passenger & Ticket Agent, with headquarters at Chicago.

H. G. Elliott, Chief Clerk in the General Passenger & Ticket Department, has been appointed Assistant General Passenger & Ticket Agent, with headquarters at Montreal.

J. Pullen, General Freight Agent of the Central Vermont Ry., has been appointed General Freight Agent of the G.T. Ry. System, with office at Montreal.

W. P. Fitzsimons, Chief Clerk in the General Freight Agent's office, Montreal, has been appointed Division Freight Agent, Detroit, with charge of eastbound traffic from connections at Detroit & Port Huron, & all westbound traffic from connections at the Niagara Frontier destined to points west of the Detroit & St. Clair Rivers, vice J. E. Dalrymple, who has accepted service with the Central Vermont Ry. Co.

C. Clarke, Division Freight Agent, Detroit, in addition to his present duties, will have charge of eastbound traffic originating locally at Detroit & Port Huron, Michigan.

The Freight Traffic Manager of the G.T.R. & the General Traffic Manager of the West Shore R.R. have issued a joint circular stating that W. P. Fitzsimons has been appointed Manager of the G.T. Despatch, vice J. E. Dalrymple, who has resigned to accept service with the Central Vermont Ry. Co.

Halifax & Yarmouth.—Robt. Woodburn has been appointed Master Mechanic, with headquarters at Yarmouth, N.S.

Finlay Chisholm has been appointed Roadmaster, with jurisdiction over the employees of the maintenance of way department. Offices at Yarmouth, N.S.

Lake Erie & Detroit River Ry.—W. Woollatt, General Superintendent & Traffic Manager, has been appointed General Manager.

Lehigh Valley.—A. A. Heard, having been appointed Assistant General Passenger Agent, with office at 26 Cortlandt St., New York, has been succeeded as Western Passenger Agent at Buffalo by G. R. Chesbrough. Mr. Heard held the position at Buffalo since Jan. 1, 1897. Previous to that date he was, since 1895, General Passenger Agent of the Northern Steamship Co., & General Eastern Passenger Agent of the Great Northern Railway, with headquarters at Buffalo. He has been in railroad service since 1882, chiefly in the passenger department, & has had extensive experience both in office work & as an outside man.

White Pass & Yukon.—H. Middaugh, formerly Superintendent of Bridges & Buildings, but for some time past not connected with the road, has been appointed Superin-

tendent of Construction, in charge of the work of extending the line beyond Lake Bennett.

S. P. Brown has been appointed City Freight & Passenger Agent, with office at Seattle, Wash., vice F. P. Meyer, resigned. M. P. Brasch has been appointed Commercial Agent at San Francisco, Cal., vice S. P. Brown, promoted. J. S. Wilson has been appointed General Agent at Skagway, Alaska, vice C. W. Joynt, resigned.

Mainly About People.

Jas. Ross returned to Montreal from England early in April.

J. W. Tierney, C.P.R. Agent at Arnprior, Ont., died May 4, of smallpox.

J. H. R. White has been appointed Manager of the Quebec & Levis Ferry Co.

R. G. Reid, of the Newfoundland Ry., has been staying at Bournemouth, England.

Jno. Conway, Superintendent of the Lachine Canal, died at Montreal May 2, of epilepsy.

J. D. Mason, formerly a shipbuilder in Charlottetown, P.E.I., died there recently aged 73.

C. Percy, Treasurer of the G.T.R. eastern lines, & Mrs. Percy sailed from Montreal for Paris early in April.

C. R. Hosmer, of the C.P.R. directorate, sailed from New York on May 5, on the S. S. Lucania, en route to Paris.

Sir Wm. Van Horne is having two sardine weirs built on his weir privileges at Minister's Island, St. Andrew's, N.B.

W. H. Hayes, Manager of the Bell Telephone Co. at Windsor, Ont., was married at Pullman, Ill., Apl. 25, to Miss Stella Harris.

J. Radcliffe, of the C.P.R. advertising department, has gone to England, after 25 years absence; to recuperate after a serious illness.

W. R. Baker, General Manager of the Manitoba & Northwestern Ry., & Mrs. Baker have returned to Winnipeg from a trip to England.

The engagement is announced of S. Malloch, one of the largest shareholders in the Hamilton Street Ry., to Miss Eva Irving, of Riverside, Cal.

Mrs. I. G. Ogden, wife of the Comptroller of the C.P.R., is making an extended continental trip in Europe, accompanied by Mrs. Shaw, of Montreal.

W. Stitt, Assistant General Passenger Agent of the C.P.R. at Winnipeg, has been greatly improved in health by his sojourn at Hot Springs, Arkansas.

Lieut.-Col. Girouard, formerly of the C.P. R. engineering staff, now Director of Railways under Lord Roberts in South Africa, is forming a railroad corps.

D. Mulqueen, Cashier of the Toronto Ry., has been appointed Manager of the street ry. & other enterprises in which W. Mackenzie is interested in Sao Paulo, Brazil.

David A. M. Backus, son of F. F. Backus, General Freight & Passenger Agent of the Toronto, Hamilton & Buffalo Ry., died at Hamilton May 3, aged 8 years.

A. S. Halldie, inventor & builder of the first cable car in the U. S., which was laid down in San Francisco, died there recently, aged 73. He was a native of Scotland.

Dr. Seward Webb, President of the Adirondack R.R. Co., recently cabled T. Tait, Manager of the C.P.R. eastern lines, subscribing \$500 to the Ottawa fire relief fund.

Miss Allie M. Ham, B.A., daughter of G. H. Ham, of the C.P.R. advertising department, was married recently at Westmount, Montreal, to W. S. Burley, of Neepawa, Man.

J. M. Egan, at one time General Superintendent of the C.P.R. at Winnipeg, & latterly

Vice-President of the Central R.R. of Georgia, has been promoted to the Presidency of that road.

P. McCullough, Chief Electrician of the Toronto Ry., has gone to Liverpool, Eng., to take the position of electrician on the street railway there which is operated by the Town Council.

J. A. Gunn, of the Egyptian railway service, son of A. Gunn, of Kingston, Ont., was married at Alexandria, Egypt, April 11, to the eldest daughter of R. Carr-Harris, C.E., of Kingston.

D. D. Mann, of Mackenzie, Mann & Co., & Mrs. Mann arrived in Canada from England Apl. 22, W. Mackenzie remaining in England for the present. Mrs. Mackenzie has returned to Toronto.

General Manager Hays, of the G. T. R., sailed from New York May 8 for England, accompanied by E. W. Meddaugh & H. B. Joy, the Receivers of the Chicago & G.T.R. He is expected back in Montreal in June.

Mrs. T. G. Shaughnessy is going to desert her usual summer residence at St. Patrick's, on the St. Lawrence, for St. Andrew's, N.B. Mr. Shaughnessy has taken the Inness cottage, close to the Algonquin hotel, for the season.

Vice-President Ronald, of the Dominion Atlantic Ry., recently came out from England & has been making an inspection trip over the Co.'s railway & steamship lines. His father was a large shipbuilder in Miramichi, N. B., half a century ago, in the palmy days of wooden shipbuilding.

At the dinner of the Canada Club in London, Eng., Apl. 4, the following were among those present: Lord Strathcona, in the chair; C. C. Chipman, Commissioner of the Hudson's Bay Co.; T. Skinner, a director of the C.P.R.; J. Price, Vice-President of the G.T.R.; W. Mackenzie, D. D. Mann and Hugh Sutherland, of Mackenzie, Mann & Co.

W. T. Jennings, C.E., has been appointed by the Toronto City Council to report on the requirements of Toronto Harbor, acting in connection with a Dominion Government engineer. Mr. Jennings has also been appointed by the Ontario Government to report on the means to be adopted to prevent the repetition of damage by floods at Brantford.

Capt. P. A. Scott, R.N., for 25 years nautical adviser of the Dominion Government, died early in April. He was 84 years of age, & was a member of the Ross Antarctic expedition of 1841, which spent four years in magnetic research & geographical discovery. In his early days he served as a lieutenant in the British navy, & commanded a surveying vessel on the North American coast.

H. E. Beasley, who was recently transferred to the President's office of the C.P.R., from Nelson, B.C., was born Nov. 10, 1862, & entered railroad service in 1881 in the Engineer's Department of the G.T.R. He served in various departments, mostly as secretary & chief clerk, until 1890, when he became Assistant Superintendent of the Pacific Division of the C.P.R., & in 1897 he was made Superintendent of the Kootenay section of that division.

F. D. Laurie, formerly Superintendent of the eastern division of the I.C.R. (New Glasgow to Sydney), dropped dead at the citadel at Halifax, April 2, from heart trouble. He was a brother of General Laurie, M.P., now of England, who formerly represented Shelburne in the Dominion House. He married a daughter of the late Governor Archibald, of Nova Scotia, who survives him. He made his home in New Glasgow, of which town he was mayor two years ago. Latterly he had been acting inspector of the North American Life Association.

Jno. Coote, who died at London, Ont., recently, was one of the pioneers of that place. He was born in Ireland over 80 years ago, & came to Canada while a youth. In the troubles of 1837 he served as a cavalryman & despatch rider. Before the building of the Great Western Ry. he operated a stage line, running from Hamilton through Brantford & Woodstock to London, owning large establishments in each of these places for the carrying on of his freight & passenger business. On the opening of the railway he settled in London, & conducted an extensive livery business.

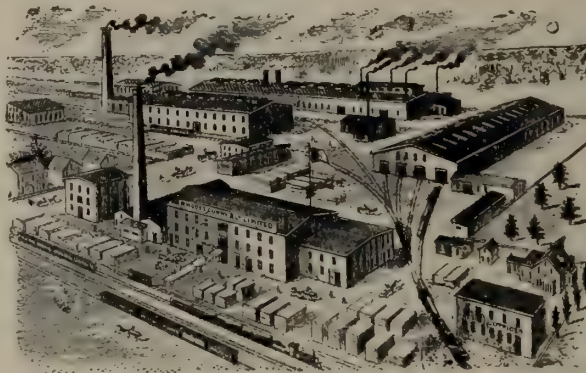
W. B. Lanigan, who has been appointed Asst. General Freight Agent of the C.P.R. at Toronto, was born at Three Rivers, Que., in 1861, & was educated at St. Joseph's College, Three Rivers, & Stanstead College, Stanstead, Que. He entered the service of the Quebec, Montreal, Ottawa, & Occidental Ry. at Three Rivers as operator in 1879. In 1881 he went to the G.T.R. as operator, & in 1885 to the C.P.R. as operator & relieving agent, since which he has continued in the C.P.R.'s service. He became agent at Myrtle in 1886, at Dundalk in 1887, & at Galt in 1888, & was appointed Travelling Freight Agent in 1891, continuing in that position until appointed Assistant General Freight Agent, May 1, 1900.

"Lumsden of the Guides," a book which was published in England about a year ago, has been reissued specially for circulation in the colonies. It is a biography of Sir Harry Burnett Lumsden, of the Imperial Service, who spent most of his life in India, by his brother, General Sir Peter Lumsden. A reviewer says:—"The Lumsden family in one

generation gave not only three sons to India—Harry, known to his friends as 'Joe,' for no reason except one of affection; Peter, the author of the present biography, & William, who was killed before Delhi in the mutiny—but sent also to Canada an eminent engineer, & another brother who was for many years Mayor of Galt." The engineer referred to is

H. D. Lumsden, of the C.P.R. engineering staff.

Peter W. Ressemann, General Superintendent of the Pontiac Pacific Jct. & of the Ottawa & Gatineau railway companies, whose portrait is given on page 127, was born Oct. 16, 1857, at Hankins, Sullivan Co., N.Y., & entered railway service in 1872, since which he has



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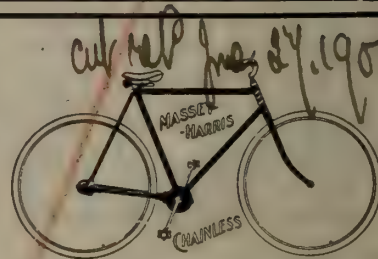
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Grand Trunk Elevator, Portland, Me.	1,000,000 "	
Export Elevator, Buffalo, N.Y.	1,000,000 "	
J. R. Booth Elevator, Depot Harbor, Ontario	1,000,000 "	
Cleveland Elevator Company's Elevator, Cleveland, O.	500,000 "	
Erie R. R. Transfer & Clipping House, Chicago, Ill.	100 cars in 10 hrs.	
Manchester Ship Canal Co.'s Elevator, Manchester, Eng.	1,500,000 "	
Burlington Elevator Co., Peoria, Ill.	500,000 "	
Canada Atlantic Railway Elevator, Coteau Landing, Que.	500,000 "	
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Union Elevator, East St. Louis, Ill.	1,100,000 "	
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been constantly employed therein. Up to 1881 he was clerk & yardmaster of the Erie R.R., 1881 to 1883 conductor of Northern Pacific R.R., 1884 to 1887 General Yardmaster & passenger conductor West Shore R.R., 1887 to 1891 Despatcher & Joint Agent Fitchburg R.R. & West Shore R.R., 1891 to 1893 passenger conductor West Shore R.R., 1893 to 1895 General Yardmaster & Asst. Superintendent Buffalo Creek R.R., Feb. 14, 1895 to date General Superintendent & Freight & Passenger Agent Ottawa & Gati-neau Railway & Pontiac Pacific Junction Railway.

Robert Cowans, died April 18, near Washington, D.C., while on his way home to Montreal from California, where he had gone for his health. He was born in Coupar, near Edinburgh, Scotland, & came out to Canada when quite a young man. He went into the dry goods business in Elora, Ont., & after some years' residence in Ontario went to Montreal 35 years ago, & had since resided there, taking a prominent part in its industrial & commercial development. In partnership with his brother-in-law, J. McDougall, he carried on the business of manufacturing car wheels & other steel work, the firm also carrying on a blast furnace at Drummondville. He was President of the Cumberland Coal & Ry. Co., Vice-President of the Canada Jute Co., & President of the Canada Fibre Co., as well as being connected with a number of other leading concerns. He was about 70 years old.

Jno. Duckworth, Bridge Inspector of the G.T.R., died in Montreal April 17, aged 77. He was ill only a short time, & was active up to the last, having sent in his weekly report on Apr. 14. He was born at Leeds, Yorkshire, & served his apprenticeship in London. He came to Canada about 45 years ago, & three years later entered the service of the old Great Western Ry. Co., which was subsequently merged into the G.T.R. He was engaged in the construction of the old Victoria tubular bridge, & superintended the placing of the first plate on the first tube of the bridge. He also assisted in the driving of the golden rivet by the Prince of Wales at the opening ceremony. As Bridge Inspector his duties took him from Portland to Sarnia & on the branch lines. He was for a number of years a member of the St. Lambert Council & Board of Education. Besides Mrs. Duckworth, who survives, he leaves two sons & two daughters.

A G.T.R. Fire Case.—The suit of Jackson vs. The G.T.R. Co., which was heard in Toronto recently, was brought to recover \$7,000 for the destruction by fire of the barn, implements, etc., of the plaintiff, near Thornhill, Ont., in April, 1899. The buildings were situated about 100 ft. from the G.T.R. tracks. At the trial the only evidence of negligence was that given by Peter Clarke, at one time Assistant Mechanical Superintendent of the northern division of the G.T.R., who said that the engines & equipment were sufficient, with the exception of the extension box of one engine, which was, in his judgement, too short. As against this, the G.T.R. called as witnesses its Superintendent of Motive Power, F. W. Morse; G. R. Joughins, Mechanical Superintendent of the I.C.R.; Mr. Harkom, Assistant to the Manager Mechanical Department, C.P.R. eastern lines; Mr. Willie, of the Baldwin Locomotive Works, & Mr. Gentry, of the Richmond Engine & Machine Works, all of whom stated that the equipment, including extension smoke boxes, was modern & sufficient, & in their judgment could not be improved upon. Notwithstanding that the evidence was overwhelmingly in favor of the G.T.R., the jury found against the Co., & judgment was entered for plaintiff, against which the Co. is appealing.

RAILWAY STATISTICS FOR YEAR ENDED JUNE 30, 1899.

In this table the minus mark (—) before figures in the net earnings column shows that there was a deficit in the operations of the line to the extent of the figures given. Where (E) appears after the name of a railway it signifies that it is an electric line. The earnings of the Fredericton & St. Mary's Bridge Co. consist of tolls on trains run by Canada Eastern Ry. The St. Clair Tunnel receipts consist of tolls on passenger & freight cars, on new locomotives, & rentals. The figures for the Intercolonial Ry. are exclusive of the Windsor Branch, 32 miles, which is leased to the Dominion Atlantic Ry., but include the Drummond County Ry., 133.79 miles, also on the following sections of the G.T.R.: Point Levis to Hadlow, 1.47 miles; Chaudiere Curve to Chaudiere, 1.19 miles; St. Rosalie Jct. to Montreal, 37.62 miles; total 40.28 miles. The operating expenses include \$210,000 rental of leased lines.

Name of railway.	Mileage.	Gross earnings.	Net earnings.	Proportion of earnings to working expenses.	Earnings per train mile.	Operating per train mile.
		\$ cts.	\$ cts.	p.c.	Cents.	Cents.
Alberta Railway & Coal Co....	64.62	147,669 19	62,073 40	172	311.22	180.39
Albert Southern	19.00	2,149 50	311 54	111	42.99	36.75
Atlantic & Lake Superior—						
Baie des Chaleurs.... 98.00						
G. Eastern, 23 miles not under traffic						
Ottawa Valley, 7 miles not under traffic	98.00	36,156 65	6,070 82	120	56.54	47.03
Bay of Quinte Ry. & Nav. Co..	64.82	142,076 83	50,862 09	156	111.31	71.46
Berlin & Waterloo (E).....	3.00	12,082 66	1,343 66	112	16.60	14.75
Brockville, Westport & Sault Ste. Marie.....	45.00	31,797 13	1,657 72	105	96.80	91.76
Buctouche & Moncton.....	32.00	14,129 76	— 983 46	93	71.73	76.72
Calgary & Edmonton.....	295.07	257,120 92	86,127 87	150	183.15	121.09
Canada Atlantic.....	172.00	850,052 02	241,811 10	139	130.48	93.36
Canada Coals & Ry. Co.....	12.00	25,115 71	15,186 90	252	167.17	66.38
Canada Eastern.....	136.00	127,112 30	36,161 58	139	67.34	48.45
Canada Southern.....	382.19	4,107,925 88	1,030,834 83	133	118.75	88.95
Canadian Northern, comprising Lake Manitoba Ry. & Canal Co.'s line, & Winnipeg Gt. Northern Ry.....	124.74	143,169 98	75,078 98	210	235.62	112.06
Canadian Government Rys.—						
Intercolonial.....	1,300.96	3,738,331 44	62,645 23	101	76.58	75.29
Prince Edward Island.....	210.00	165,012 03	— 53,040 98	75	63.89	84.42
Canadian Pacific.....	6,680.72	26,745,970 61	11,291,797 16	173	158.50	91.58
Caraguet.....	68.00	16,909 41	— 4,762 22	78	42.01	53.84
Carillon & Grenville.....	13.00	2,030 07	— 1,341 05	60	32.74	54.37
Central Ontario.....	113.60	111,526 19	25,388 27	129	109.44	84.53
Central of New Brunswick....	45.66	8,573 43	— 11,167 91	43	26.63	61.36
Coast Ry. of Nova Scotia.....	30.80	17,725 83	— 111 31	99	57.60	57.97
Cumberland Ry. & Coal Co.....	32.00	110,322 99	58,242 21	211	158.83	74.98
Dominion Atlantic.....	220.50	671,863 95	164,375 45	132	121.36	91.67
Elgin & Havelock.....	28.00	7,848 69	— 1,292 53	85	45.13	52.57
Esquimalt & Nanaimo.....	78.00	156,520 19	5,440 88	103	76.69	74.02
Fredericton & St. Mary's Ry. Bridge Co.	1.33	4,251 79	1,093 76	134	.....	.....
Grand Trunk.....	3,146.98	18,471,159 18	6,867,824 00	159	108.60	68.22
Great Northern.....	28.00	5,068 34	— 2,693 76	65	26.49	40.57
Great Northwest Central.....	50.93	53,751 59	7,651 20	116	262.83	225.41
Gulf Shore.....	16.78	1,310 11	118 29	109	42.81	38.94
Hamilton Grimsby & Beams-ville (E).....	23.00	43,836 96	21,717 96	198	18.90	9.53
Hamilton & Dundas (E).....	7.25	23,366 34	10,535 03	182	39.66	21.78
Hamilton Radial (E).....	12.00	29,292 77	14,039 38	192	21.62	11.26
Hampton & St. Martins.....	30.00	6,422 92	— 407 59	94	45.87	48.79
Hull (E).....	13.63	63,692 49	29,287 28	185	16.65	8.99
Hereford.....	53.30	42,397 13	— 20,335 84	67	49.88	73.81
Iroindale, Bancroft & Ottawa...	50.00	16,834 46	1,208 42	107	56.61	52.55
Kaslo & Slocan.....	31.80	69,076 94	23,799 32	152	238.53	156.34
Kent Northern.....	34.00	10,157 37	2,287 37	129	55.30	42.85
Kingston & Pembroke.....	112.85	137,996 38	34,530 82	133	101.09	75.80
L'Assomption.....	3.00	889 92	— 638 38	58	148.48	25.49
Lake Erie & Detroit River....	179.72	371,409 38	130,122 42	153	101.02	65.62
Lotbinière & Mégantic.....	30.34	12,652 28	1,335 46	111	100.71	90.08
Manitoba & Northwestern.....	249.97	321,753 36	78,798 58	132	206.92	156.25
Massawippi Valley.....	35.46	127,305 53	36,080 59	139	79.22	56.76
Montfort & Gati-neau Coloniza-tion	33.00	10,594 73	— 3,230 48	76	22.31	29.11
Montreal & Atlantic.....	163.40	280,168 70	— 31,705 01	89	83.98	93.48
Montreal Island Belt Line (E)...	12.67	38,474 21	18,857 93	196	16.39	8.35
Montreal Park & Island (E)....	40.88	112,654 14	44,522 80	165	16.11	9.74
Montreal & Province Line.....	40.60	53,083 49	15,575 96	141	100.57	71.06
Montreal & Vermont Jct.	23.60	123,797 36	30,857 28	133	83.58	62.75
Nelson & Fort Sheppard.....	59.40	120,629 78	58,364 75	193	205.76	106.20
New Brunswick & P.E.I.....	36.00	18,017 29	3,572 41	124	52.10	41.77

RAILWAY STATISTICS FOR YEAR ENDED JUNE 30, 1899—Continued.

Name of railway.	Mileage.	Gross earnings.	Net earnings.	Proportion of earnings to working expenses.	Earnings per train mile.	Operating per train mile.
		\$ cts.	\$ cts.	p.c.	Cents.	Cents.
Niagara Falls Park & River(E).	13.68	59,360 33	20,702 86	153	22.66	14.76
Northern Pacific & Manitoba...	311.61	378,724 23	19,853 36	95	140.92	148.31
Nosbonsing & Nipissing	5.50	47,365 00	2,744 60	106	387.60	...
Nova Scotia Central	74.00	49,688 82	8,257 67	119	100.12	...
Nova Scotia Steel Co.	12.50	19,820 88	3,649 68	122	127.05	...
Orford Mountain	26.50	19,227 87	1,832 58	110	57.87	...
Oshawa (E).....	8.50	29,699 92	13,594 61	184	58.22	...
Ottawa & Gatineau.....	56.50	62,048 64	8,145 49	111	105.63	...
Ottawa, Arnprior & Parry Sound	263.80	782,051 14	157,313 46	125	85.56	...
Ottawa & New York	56.79	46,328 76	13,159 91	78	67.28	...
Pembroke Southern	20.50	3,320 88	4,968 77	40	41.19	...
Philipsburg Ry. & Quarry Co..	7.50	2,918 22	1,415 16	193	303.98	...
Pontiac Pacific Junction	70.60	47,738 97	3,714 15	108	91.24	...
Port Arthur, Duluth & Western.	85.50	17,378 46	4,639 70	79	107.44	...
Qu'Appelle, Long Lake & Saskatchewan.	253.96	88,740 81	1,934 24	97	139.51	...
Quebec & Lake St. John	298.00	295,307 00	49,030 75	119	107.05	...
Quebec Central	213.50	468,851 51	161,452 43	152	102.12	...
Quebec, Montmorency & Charlevoix	30.00	58,882 32	24,561 02	171	104.55	...
Red Mountain	9.53	87,190 31	54,913 35	270	521.47	...
Salisbury & Harvey	45.00	21,899 81	3,612 48	119	77.99	...
Shore Line, New Brunswick....	82.50	28,266 19	3,818 78	88	50.36	...
Stanstead, Shefford & Chambly.	43.00	57,828 79	9,938 14	120	80.63	...
St. Clair Tunnel.....	2.23	269,359 00	169,292 98	269	...	...
St. Catharines & Niagara Central	12.35	26,209 36	1,372 57	105	103.87	...
St. Lawrence & Adirondack....	33.00	144,953 21	78,412 27	217	102.83	...
Sydney & Louisburg	59.09	381,847 13	204,938 25	215	224.52	...
South Shore	44.67	43,013 18	12,429 88	140	71.95	...
Témiscouata	113.00	61,966 53	1,139 31	101	61.36	...
Tilsonburg, Lake Erie & Pacific	20.00	9,524 73	732 01	108	47.62	...
Thousand Islands	4.33	20,403 67	8,002 84	164	108.12	...
Toronto, Hamilton & Buffalo...	82.94	332,566 99	85,933 21	134	120.89	...
United Counties.....	83.80	44,051 89	18,417 91	70	42.11	...
Victoria & Sydney	16.26	18,011 84	1,348 22	108	74.54	...
	17,250.21	62,243,784 69	21,537,557 48	...	...	...

RAILWAY FINANCE, MEETINGS, &c.

Calgary & Edmonton.—Net earnings for Mar. \$16,603.20, against \$10,193.68 in Mar. 1899.

Canada Southern.—The annual meeting will be held at St. Thomas, Ont., June 6. The annual meetings of the following subsidiary companies will also be held there on the same day:—Leamington & St. Clair Ry.; Niagara Grand Island Bridge Co.; Sarnia, Chatham & Erie Ry.; Niagara River Bridge Co.

Canadian Northern.—Notice is given that an agreement between the Manitoba & South-eastern Ry. Co. & the C.N.R. Co., dated April 28, for an amalgamation of these two companies under the name of the Canadian Northern Ry. Co. has been approved by the Governor-in-Council. Notice is also given that an agreement between the Ontario & Rainy River Ry. Co., & the C.N.R. Co. (the latter Co. being formed by an amalgamation between the Manitoba & South-eastern Ry. & the C.N.R.) for an amalgamation of these 2 companies, under the name of the Canadian Northern Ry. Co., was entered into on May 3, & that it has received the sanction of the Governor-in-Council.

C.P.R.—The London Stock Exchange Committee has ordered the further issue of £1,200,000 C.P.R. 4% non-cumulative preference stock, & £1,213,880 4% perpetual consolidated debenture stock to be quoted in the official list.

Central Ontario.—The annual meeting will be held at Trenton May 16.

Chicago & G.T.—It is stated that a syndicate has been formed by MM. Wertheim & Gompertz, of Amsterdam, to provide \$5,437,000 in cash to take up the 1st mortgage bonds of this Co., which fell due Jan. 1 last, & were not paid at maturity. The syndicate, which is composed of some of the large financial houses in Amsterdam & London, has been formed for the protection of the 2nd mortgage bondholders, & it undertakes to furnish the funds needed under an extension of the existing 1st mortgage. The 2nd mortgage bondholders will claim by this offer to terminate the proceedings commenced by the G.T.R. Co. of Canada for the foreclosure of the 1st

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BARLEY..... 24.80 "
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mortgage, & their committee have instructed counsel in America to intervene to this effect. They propose also to hold the G.T. Co. liable for its obligations under the traffic guarantee of the 2nd mortgage bonds.

Chignecto Marine Ry.—A. D. Provand, a member of the British House of Commons, arrived in Ottawa in the middle of April to submit another proposition to the Government from the directors of this line in reference to the completion of the enterprise & the earning by the Co. of the Government subsidy. Some time ago the Government declined to give a guarantee that the subsidy originally voted would be paid in the event of the railway being completed. (Oct. 99, pg. 287.)

Columbia & Kootenay.—At the annual meeting in Vancouver May 2, the following were elected: President, H. Abbott; Vice-President, G. McL. Brown; other director, W. F. Salisbury. The Co.'s line is leased to the C.P.R. Co. for 999 years from 1890.

Dominion Atlantic.—Net earnings 3 months to Mar. 31, \$138,000, against \$117,754 for corresponding period.

Erie & Huron.—A special general meeting of shareholders will be held at Walkerville May 18, to change the location of the head office of the Company to Walkerville, & to deal with the proposed agreement for amalgamating with the Lake Erie & Detroit River Ry. Co.

Great Northwest Central.—The annual meeting will be held in the Union Station, Toronto, June 5.

J. S. Cartwright, official referee in the suit of Delap vs. Charlebois, has awarded A. Charlebois, of Quebec, \$310,000 for building 50 miles of this line.

Hamilton & Barton Incline Ry.—G. T. Tuckett & B. Whitton, jr., have been elected to fill vacancies on the board. J. Dickenson, M.P.P., has been elected President, succeeding the late G. E. Tuckett, & G. T. Tuckett has been elected Vice-President.

Heinze vs. Angus et al.—Some preliminary proceedings are going on in Montreal in the case of Heinze vs. Angus et al., & the B.C. Smelting & Refining Co., mis-en-cause. The facts which gave rise to the action are as follows:—On Feb. 11, 1898, R. B. Angus & T. G. Shaughnessy signed an agreement with F. A. Heinze, of Butte, Montana, by which all the stock of the Columbia & Western Ry. of B.C. were transferred by Heinze & his associates to Angus & Shaughnessy. By the same agreement certain of the assets of the B.C. Smelting & Refining Co., of Trail, of which Heinze was the chief stockholder, were also transferred to Angus & Shaughnessy, but the shares & charter of the Co. were retained by Heinze. By the terms of the agreement it was stipulated that the fuel & stores of the B. C. Smelting & Refining Co. were to be sold separately to Angus & Shaughnessy. A disagreement subsequently took place between the parties, the purchasers denying that Heinze had any ownership of the wood & that the stores mentioned in the agreement were not stores, in smelter parlance. In consequence, Heinze, in Dec., 1898, issued a writ against Angus & Shaughnessy for about \$84,000. The case is expected to come on for trial this month. On Apr. 28 the examination of Mr. Shaughnessy for discovery was commenced by Mr. Heinze's counsel before the prothonotary.

Lake Erie & Detroit River.—At the annual meeting, May 1, the following were elected: President, F. H. Walker; Vice-President, Dr. S. A. King; Treasurer, J. H. Walker; Secretary, H. Lye; other directors, W. Robins, W. Aikman, S. A. Griggs; General Manager, W. Woollatt.

New York & Ottawa.—The appointment of H. W. Gays as Receiver was mentioned in our last issue. The following further partic-

ulars are given in a New York despatch of Apr. 27: "Judge Lacombe, of the U.S. Circuit Court, to-day appointed H. W. Gays Receiver of the N.Y. & O.R. Co. Gays filed a bond for \$50,000 with Commissioner Shields. The Receiver was appointed on the application of A. T. Enos, of Englewood, N.J., who recently recovered a judgment for damages of \$2,354. The complaint says the payment of this has been demanded & refused. The complaint states that the N.Y. & O.R. Co. operates a steam railway extending from Tupper Lake, in Franklin County, to Moira, in the same county, & to the shore of the St. Lawrence River, & in Canada extends from Ottawa to Cornwall; that a mortgage on the property is held by the State Trust Co. of New York to secure an outstanding issue of \$1,728,000 worth of 4% 20-year bonds, & that a 2nd mortgage is held by the State Trust Co. to secure \$632,000 bonds. It is declared that no interest has been paid on the 2nd mortgage & that the Co. has failed to pay the interest on the 1st mortgage since May 1, 1899. It is also set forth that owing to the failure of the Railway company & the Cornwall Bridge Co. to finish the construction of a bridge across the St. Lawrence River on Nov. 15, 1899, their operating expenses have exceeded the revenue & that the floating & unsecured debt has accumulated, & that this debt the Co. is unable to pay.

Northern Pacific.—At a recent meeting of directors the regular dividend of 1% on the preferred shares was declared. No action was taken on a common-stock dividend. R. Bacon, of J. P. Morgan & Co., was elected a director, to succeed the late C. H. Coster.

Ontario & Quebec.—The ½-yearly interest due on June 1 on the 5% debenture stock of the O. & Q.R. Co. will be paid on that date by the C.P.R. Co., & the interest for the same period on the common stock will be paid on the same date, at the rate of 6% per annum, by the Bank of Montreal, Montreal, or at the London office of the C.P.R. Co.

Qu'Appelle, Long Lake & Saskatchewan.—The net loss in operating for Mar. was \$502.61, against net earnings of \$2,806.79 in Mar., 1899.

Quebec & Lake St. John.—The London Stock Exchange Committee has ordered Q. & L. St. J. R. Co.'s London bondholders' committee's certificates of deposit for £352,700 5% 1st mortgage bonds to be quoted in the official list.

Quebec Central.—Earnings for Mar., \$36,338.63, against \$30,453.83 in Mar., 1899; working expenses, \$28,502.23, against \$25,344.16; net earnings, \$7,836.40, against \$5,109.67.

Earnings Jan. 1 to Mar. 31, \$96,851.69, against \$84,846.74 for corresponding period; working expenses, \$76,805.03, against \$69,369.81; net earnings, \$20,046.66, against \$15,476.93.

Rutland R. R.—President Clement has issued the following circular: "Beginning May 1 the Bennington & Rutland Ry. will be operated by the Rutland R.R. Co., & all agents & employes of the B. & R.R. Co. will become the agents & employes of the Rutland R.R. Co., & will report direct to the officers of that Co. having charge of the different departments."

The following press item is unverified, & it is given for what it may be worth: "Dr. W. S. Webb, Chairman of the Directors of the Rutland Ry., & P. W. Clement, President of the same road, have invested several million dollars in the formation of a new through freight line from the Atlantic seaboard to Chicago, & according to contracts already made these two capitalists & their associates will continue to expend large sums of money in the expansion of the Rutland Ry. in Vermont into a rail & lake route between Boston

& Chicago. When President Clement took the Rutland Ry. off the hands of the Delaware & Hudson people about two years ago, he secured Dr. Webb's co-operation, & plans of extension were devised. The Bennington & Rutland, a short line running from Rutland to North Bennington, was purchased. This connected the Rutland road with the Fitchburg at North Bennington. The Rutland Ry. extends as far as Burlington, & Dr. Webb & Mr. Clement conceived the idea of building a railroad across Lake Champlain on the North Hero group of islands. Rouse's Point is the northern terminus of this Canadian branch, & there connection is made with the Ogdensburg & Lake Champlain line, which was recently purchased outright by Dr. Webb & his associates. Negotiations for the purchase of a line of steamers on the Great Lakes are under way, & orders have been placed for the construction of 3 or 4 new boats of large tonnage. These boats will have direct connection with the Ogdensburg & Lake Champlain line. All that remains, therefore, to give Dr. Webb & Mr. Clement a through route from Chicago to Boston is trackage service between North Bennington, Vt., & Boston, such as their present arrangement with the Fitchburg Ry. gives them. The leasing of the Fitchburg road by the Boston & Maine may compel Dr. Webb & his associates to build a new line from some point on the Rutland to Boston or abandon the idea of a through line. The determined opposition of the Rutland owners to the ratification of the Boston & Maine-Fitchburg lease, indicates that they have no expectation of making any satisfactory arrangement with the B. & M. management."

Shore Line.—Notice is given of application to the Dominion Parliament to incorporate a company to purchase the Shore Line Ry. in New Brunswick. To connect the railway with the Washington County Ry. in Maine by constructing bridge across the St. Croix River at St. Stephen, N.B. To extend the railway to connect with other railways in N.B., & to purchase the said railways. To purchase, amalgamate or consolidate the Shore Line Ry. Co. with the Washington County Ry. Co. To construct & maintain wharfs, warehouses, elevators, telegraph & telephone lines, & with other powers.

Toronto, Hamilton & Buffalo.—The annual meeting will be held at the Queen's hotel, Toronto, June 5.

White Pass & Yukon.—It is said that the general offices of this Co. are to be removed from Seattle, Wash., to Skagway, Alaska.

U. S. Railway Earnings.

Railways gross earnings continue to show their course of remarkable improvement. The Chronicle's reports of 117 roads for Mar., 1900, show an increase in gross earnings of \$6,340,000, or 12½% over the earnings of Mar., 1899. The record of 116 roads for the 3 months of this year shows an increase in gross earnings of over \$23,000,000—higher by more than \$5,000,000 than for any year since the panic. Last year the increase for Mar. aggregated 6.35% over the previous, & in 1898 it amounted to 15.25%, though the total increase was slightly less than this year. This improvement extends to all sections of the country. Of the roads reported, less than 1 in 8, & those small ones as a rule, showed any decreases. Of the roads whose changes in gross earnings for the month exceed \$30,000, only one, the New York, Ontario & Western, reports a falling off. The Great Northern leads all others in increases for Mar. with \$596,000. Among the other leading ones are the Baltimore & Ohio, \$515,000; the Illinois Central, \$406,000; the Southern, \$360,000; the Northern Pacific, \$312,000; the Chicago, Milwaukee & St.

Paul, \$294,000, & the Louisville & Nashville, \$289,000. Perhaps the most remarkable gain has been that of the 13 roads, classified as the Northwestern & North Pacific group. Their gross earnings for Mar. were nearly \$13,500,000. Six years ago the earnings of these same roads for that month were \$7,500,000. The Southern group of 11 roads gains from \$6,500,000 in 1895 to nearly \$10,000,000 in Mar., 1900. The roads in the coal & manufacturing districts are being most favored by the existing trade prosperity. The Hocking Valley, for example, whose traffic consists largely of bituminous coal, though a small road, reports an increase of \$131,000. The increased cotton movement has had its effect upon the Southern roads. The receipts at the southern outports for Mar. were 450,000 bales, against 377,000 last year. At the same time the receipts of cotton at Galveston fell off 6,000 bales. There has also been an increase in the shipments of wheat, which has affected the Western roads. The receipts in the primary markets in the West for the 5 weeks ended Mar. 31, 1900, were 19,500,000 bush., against only 16,750,000 bush. the corresponding weeks of last year. Yet at Chicago, Kansas City & several other points, the wheat receipts this year were smaller than a year ago. During the same weeks also the receipts of corn have made a gain over the receipts of the preceding year of some 8,000,000 bush.; oats, 2,000,000; & barley, 2,500,000 bush.—*Railroad Gazette*.

RAILWAY TO THE YUKON.

Under provisions made by Parliament in the sessions of 1898 & 1899, surveys have been conducted with a view to ascertaining the feasibility & approximate cost of a line of railway to be constructed entirely on Canadian territory, in order to give communication with the Yukon district from a point on an existing Canadian railway, & also from a Canadian port on the Pacific coast. Three surveying parties have been engaged in the work, under the charge respectively, of V. H. Dupont, C. F. K. Dibble & J. S. O'Dwyer. The results of their work are summarized by the Chief Engineer as follows:

The most northerly point on an existing railway system is Edmonton, the present terminus of the Calgary & Edmonton Ry. (leased to the C.P.R. Co.), 192 miles north of Calgary on the C.P.R. main line. This place was accordingly adopted as the objective point from which the projected line should start, & here two of the expeditions were organized. The point of commencement of actual survey, however, must be regarded as in the neighborhood of the eastern boundary of British Columbia, about 500 miles from Edmonton by the existing trail via the Lesser Slave Lake, to the Peace River & thence following the course of that river. The intervening country is known, & is understood to present no serious obstacles to railway construction.

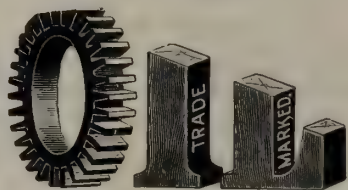
Starting from a point about 9 miles east of the B.C. boundary, a possible location has been found, which practically runs westerly along the southerly side of the Peace River for about 199 miles to the junction of the rivers Parsnip on the south & Finlay on the north, this junction of waters forming the Peace River. In this distance there occurs a stretch of about 10 miles, where the waters of the Peace lie in a canyon the walls of which are about 400 ft. high, pierced by numerous gullies or creeks which would require to be bridged. At the junction, it is necessary either to cross the Parsnip, which would be effected by a bridge at a point about 2 miles above the junction, the length of which would be 950 ft., with a height of about 32 ft. above low water (a work for which the bed of the river, composed of very compact gravel, would offer good foundation) or by a bridge, below the junction, at Finlay Rapids, where the bed of the Peace River is rock. This crossing would, however, necessitate the bridging, also, of the Finlay, which is about the same width as the Parsnip. The work to be executed comprises 135 miles of light, 46 of medium, & 20 of heavy construction. The estimated cost of this 201 miles, up to & including the crossing of the Parsnip, is at the average rate of \$19,721.47 a mile, or \$3,964,016.88, including 16 bridges, varying in length from 25 to 950 ft. This estimate is based on prices for similar work in Eastern Canada, to which must be added the cost of transport of

laborers, plant & material, & whatever difference there may be in rate of wages. Good sandstone for masonry work is abundant, but black & white spruce, which is plentiful, would be the only timber available.

From this junction of the rivers Parsnip & Finlay the line for some 25 miles crosses the wide valley lying between the Rocky Mountains & the Cariboo Range. It follows the west bank of the Finlay 16 miles to the mouth of the Omenica, thence along the south bank of the latter 9 miles to the west border of the above-mentioned valley. From this point it continues westward, following the Omenica to the mouth of the Osilinka, thence along this river to its headwaters, 90 miles from the Parsnip. These 90 miles are estimated to cost \$15,600 a mile, including steel bridges, or \$1,404,000.

From this 90th mile a line will need to be obtained via Sestoot Lake & River—(passing a few miles north of Ft. Connolly)—to the junction of the Sestoot with the main Skeena River. At this point the railway would probably turn to the north, following the valley of the Skeena, but the season was too far advanced to admit of full exploration; from information obtained, however, there does not appear to be any serious obstacle to construction. From a point about 28 miles lower down on the main River Skeena, an exploring party travelled about 53 miles northerly & up the valley of the Nass, to a point where the main waters of the Skeena were met. Here is a union of two parallel valleys formed by a high hilly range, running for a distance of about 45 miles, north-west, in both of which are the summit waters of the Skeena, flowing south, & of the Stikine, flowing north. Either would appear to offer a feasible route for a railway. By the westerly one the distance would be about 6 miles longer than by the other. The gradients also of the westerly are more severe, being 54 ft. to the mile against 22 ft. At this northerly end these two valleys join, & the waters which have traversed them become the main river Stikine. From this point of junction for a distance of about 130 miles down the Stikine, there appear to be no features of difficulty, considering the country traversed, but as the descent of the river continues; its

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waters pass through so severe & extensive a canyon district—the Great Canyon of the Stikine—that it was considered advisable to ascertain whether a less difficult route could not be found.

From information gained from various competent & reliable sources, it appeared likely that by leaving the Stikine valley and following a north-westerly course to Dease Lake, not only would a better location be discovered, but that from Dease Lake a comparatively easy route could be followed to the head of Teslin Lake, along an existing trail between the two lakes, which would, approximately, be the route adopted, & which had been traversed by prospectors the previous winter in 7 days. From Teslin, the river navigation to Dawson is, of course, that at present followed. Exploration was accordingly carried on with the view to a railway location to Dease Lake in the auriferous Cassiar district, & the results show that a practical route can be obtained from a point (Beaver Creek) above the Great Canyon of the Stikine to that lake, about 59 miles, with but a limited amount of heavy work. An estimate of the cost of the last 111 miles, comprised in 52 miles down the Stikine Valley to Beaver Creek, & the 59 miles from that creek to Dease Lake has been furnished, based on prices in Eastern Canada (to which has, therefore, to be added the cost of labor, transport, supplies & whatever difference there may be in wages) as follows:—74 miles of light work at an average cost of \$14,000 a mile; 32 at \$23,000, and 5 at \$35,000, which together with provision for bridges, \$75,000, aggregates \$2,022,000 as the estimated cost of this section.

Should the line indicated above be followed the approximate distance from the easterly boundary of B.C., to the southerly end of Dease Lake would be 646 miles, & a further distance of 136 miles would bring the railway to the head of Lake Teslin, making a total of 782 miles to the navigable waters of the Yukon district. From Edmonton to the boundary the approximate distance would be 500 miles, making the total approximate distance from an existing railway system to the head of Lake Teslin, 1,282 miles. Of this distance much remains necessarily undetermined; connecting links of surveys have to be made; alternate routes on certain portions have to be carefully considered; & possible improvements may be found by which the location, even where now regarded as clearly defined, may be modified to advantage. Still a good deal of valuable information has been obtained, & the feasibility of constructing the railway without inordinate cost has been demonstrated. It appears, however, highly probable that a very much shorter line of no difficult character can be obtained from the head waters of the Stikine to Dease Lake by following down the valley of the river Clappan (or third south fork of the Stikine) & crossing the main Stikine above the Grand Canyon.

Explorations with a view to location of a railway from a Canadian Pacific ocean port into the Yukon district were carried on, the general results of which may be summarized as follows:—The known ports calling for attention are Port Essington, near the mouth of the river Skeena on its south side, & Port Simpson near the entrance to Portland Inlet. These ports & the possible routes from them eastwards up the Skeena were made the subject of examination in connection with the early surveys for the C.P.R., & the object of the present surveys being to obtain information as to the practicability of a line leaving the river Skeena at some point where its construction northwards would be feasible, Hazelton, at the forks of the Skeena, about 150 miles from Port Essington (which is navigable for steamers of light draught at stages of mean water) was made the starting point for an exploration which extended for about

130 miles to the point of junction of the waters of the Skeena & Sestoot, above mentioned as on the suggested line from Edmonton, from which point the railway might follow the route of that location to the northward as already described.

Port Simpson, the most northerly of the harbours of B.C., is about 50 miles north of Port Essington, & from it a survey was made in 1879, southerly to the river Skeena, about 40 miles; thence up the river on its north side, in a north-easterly direction; the first 60 miles was actually located, the work on the first 32 miles being classed as very heavy. Port Simpson, which, in common with other possible ports, received in 1879 careful examination, has been pronounced both by naval & engineering experts to be an exceptionally fine, deep harbour, well protected from winds; easy of access from the sea; free from frogs & ice; never freezing over even during the winter of 1878, which was an extremely severe one; while the average winter snowfall does not exceed 18 inches, & this does not remain more than a day or two. The officer of the Hudson's Bay Co. records the budding of trees & the blooming of garden flowers on Feb. 10, 1878. These climatic advantages are, of course, due to the Japan current.

Port Essington, about 450 miles from Victoria, is situated on the south side of the Skeena about 11 miles from its mouth. It is not a good harbour, the access from the sea being bad, while it is exposed to winds & the action of masses of ice from the Skeena, which drifting up and down with the tide render it practically ice-bound for the winter months. A good harbour, however, exists beyond the mouth of the river, to which the name of Port Fleming has been given.

A third port might possibly be found on Kitimat Inlet, up the Douglas Channel. At the head of this inlet is the mouth of the river Kitimat, the valley of which, though not fully explored, was to some extent examined by the survey parties of 1876, resulting in the opinion that an easy route could be found up to the river Skeena. It would possibly join that river at a point about half way between Port Essington & Hazelton, considerably reducing the distance for traffic coming up from Victoria and Vancouver & greatly decreasing the cost of railway construction as compared with a line from Port Simpson. In 1898 & 1899 powers were given by the Province of B.C. to a railway company to build a line from the Kitimat Inlet with an objective point, east of Lake Babine, on the river Omenica.

It might also be desirable that a route should be explored up the valley of the Nass, the mouth of which is on the south side of Portland Inlet, & which may be found to afford a practicable means of communication with Telegraph Creek on the Stikine, whence an easy location, with the exception of a small portion, can be found along the present trail to Dease Lake, distant about 72 miles.

RAILWAYS & CANALS.

Annual Report of the Department.

Following is a summary of the report of the Deputy-Minister & Chief Engineer for the year ended June 30, 1899:

The number of railways in actual operation, including the 2 Government roads, the I.C.R. & the P.E.I.R., was 153; some of these, however, are amalgamated or leased; making the total number of controlling companies 84, not including the Government railways. The number of companies absorbed by amalgamation is 33, & the number of leased lines is 35.

The number of miles of completed railway was 17,358, an increase of 488, besides 2,402 miles of sidings. The number of miles laid with steel rails was 17,180, of which 562 miles

was double track. The number of miles in operation was 17,250.

The paid-up capital amounted to \$964,699,784, an increase of \$23,402,747. The gross earnings amounted to \$62,243,784, an increase of \$2,528,679, & the working expenses aggregated \$40,706,217, an increase of \$431,328 compared with those of the previous year, leaving the net earnings \$21,537,567, an increase of \$960,011. The number of passengers carried was 19,133,365, an increase of 689,316, & the freight traffic amounted to 31,211,753 tons, an increase of 2,425,750 tons. The total number of miles run by trains was 52,215,207, an increase of 1,526,924. The accident returns show 20 passengers killed.

The Government expenditure on railways prior to & since Confederation (1867) amounts, on capital account, to \$124,327,857.65 (including a payment of \$25,000,000 to the C.P.R. Co.) & for railway subsidies charged against the Consolidated Fund the further sum of \$20,633,842.16, making a total expenditure of \$144,961,699.81. In addition, there has been an expenditure since Confederation, for working expenses of \$76,726,244.05, covering the maintenance & operation of the Government roads, or a grand total of \$221,687,943.86, all of which, with the exception of \$13,881,460.65, has been expended on railways during the past 32 years. This total does not include an annual subsidy of \$186,600 to the Atlantic & Northwest Ry. Co. for 20 years from July 1, 1889, nor interest at 5% on \$2,394,000, payable to the Province of Quebec for the line from Quebec to Ottawa, which has been transferred to the Public Debt. The revenue derived from the Government roads during the same period amounts to \$68,451,220.29.

Canadian Pacific Ry.—By the payment during the fiscal year of \$233.67, the total amount, \$579,255.20, awarded to this Co. in 1891 by the special arbitrators in respect of transferred works in B.C., & to be expended by the Co., under Government supervision, in certain specified directions, has been earned & paid.

The construction of the Crow's Nest Pass Ry. being considered a necessity for the successful development of the mining interests of B.C., Parliament granted a subsidy of \$11,000 a mile in aid of it. Under the Act the C.P.R. Co. undertook the work of construction & entered into a contract, breaking ground July 15, 1897, since which the works of construction have been prosecuted continuously up to date, there remaining only work to the value of \$60,000 to complete the section between Lethbridge & Kootenay Lake. The length of road under contract is: Lethbridge to Kuskanook Station (Kootenay Lake), 290 miles; Kuskanook Station to Nelson, 54 miles; total length, 344 miles. The maximum grade is 1% or 52.80 ft. per mile, severest curves 10 & 12 degrees, except in one instance, where a 15 degree curve has been introduced. The work of construction has so far been confined to the section between Lethbridge & Kuskanook Station, 290 miles, which section of road is being successfully operated to the great benefit of the country. A train transfer landing has been constructed on Kootenay Lake at Kuskanook, so that cars with their loads are transferred without transshipment from that point to Nelson. The subsidy paid up to Dec. 1, 1899, is \$3,116,250.

The improvements made on the road & rolling stock in the last few years enabled the Co. to increase the speed of its transcontinental express trains during the past summer, which was greatly appreciated by the travelling public. The Co. now has equipped with self-couplers 8,456 freight cars, & has fitted 6,601 freight cars with automatic brakes.

Government Railways in Operation.—The several lines maintained by the Government are: The Intercolonial, the Windsor Branch (maintained only), & the Prince Edward Island Rys. The gross earnings of all the Government

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1882	1,134	12,058 86	2,967 93	2 61	11.00
1883	2,210	9,493 68	10,857 65	4 91	4.73
1884	2,558	13,914 31	23,081 85	9 01	4.23
1885	3,642	26,576 99	29,802 42	8 18	7.76
1886	5,804	28,499 82	53,981 28	9 30	4.85
1887	7,811	59,014 67	81,384 41	10 44	5.78
1888	11,800	89,018 16	117,821 96	9 98	6.43
1889	17,349	116,787 82	188,130 36	10 84	5.85
1890	24,604	181,846 79	283,967 20	11 54	5.18
1891	32,303	261,436 21	408,798 20	12 65	6.40
1892	43,024	344,748 82	580,597 85	13 49	6.25
1893	54,484	392,185 93	858,857 89	15 76	5.47
1894	70,055	511,162 30	1,187,225 11	16 94	5.47
1895	86,521	685,000 18	1,560,733 46	18 03	5.67
1896	102,838	820,941 91	2,015,484 38	19 60	5.50
1897	124,685	992,225 60	2,558,832 78	20 52	5.56
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roads for the fiscal year, 1898-9, amounted to \$3,945,817.40, & compared with those of the preceding year show an increase of \$631,970.30. The gross working expenses amounted to \$3,906,612.31, an increase of \$329,363.43. The net profit on the operations of the year was \$39,205.19. The above figures include \$210,000, rental of leased lines for the extension of the I.C.R. into Montreal.

Intercolonial Ry.—On Mar. 1, 1898, the operations of the I.C.R. were extended to Montreal by means of leases obtained from the Grand Trunk & Drummond County railway companies, making an addition of 169.81 miles to the operation of the government line, its length being 1,314.67 miles, instead of 1,145. Consequently, in the fiscal year 1897-8 a new element was introduced into the I.C.R. accounts by the payment of rental during 4 months for these leased lines, & in order not to complicate the comparison of averages of that with those of the preceding year, the rental was treated as a separate matter, not entering into the ordinary statements of expenditure on the road. This led to some apparent discrepancies, as was explained in my last report. This year (1898-9) the accountant of the railway has dealt with the rental as an addition to the ordinary working expenses, & in his comparative statement of averages, gives such averages, for each year, both with the rental included, & also with rental omitted. The figures of my present report as Deputy are based on his statements with the rentals included, & the differences which have resulted from the use by the General Manager & by the Chief Engineer of the Department of figures from which it was omitted will, next year, cease to exist. Meantime, this explanation will cover any seeming discrepancy of statement in the matter.

During the fiscal year there was an addition of \$1,081,929.94 to capital account expenditure, making the total expenditure chargeable to capital, on the whole road as amalgamated under the Act of 1891, up to June 30, 1899, \$56,750,843.89. The additions made during the year included \$63,945.04 for increased accommodation at Halifax, \$195,534.59 for increased accommodation at St. John, \$20,000 for increased accommodation at Moncton, \$21,258.68 for the extension to deep water at North Sydney, \$17,358.96 to build an elevator at St. John, \$41,203.83 to build an elevator at Halifax, \$49,990.39 to strengthen bridges, & \$619,999.26 for rolling stock.

The gross earnings of the year amounted to \$3,738,331.44, an increase of \$620,661.59, & the working expenses to \$3,675,686.21 (including \$210,000 rent paid for the extension into Montreal), being an increase in comparison with the previous year (when \$70,000 was paid for such rental), of \$348,037.70; the excess of earnings over expenditure being \$62,645.23, against an excess of expenditure over earnings in the previous year of \$209,978.66, or a betterment of \$272,623.89. Comparing the earnings with those of the previous year, the passenger traffic produced \$1,167,453.16, or 31.23% of the gross earnings, an increase of \$113,588.52; the freight traffic amounted to \$2,348,096.58, or 62.57% of the gross earnings, an increase of \$490,356.52, & the carriage of mail & express freight produced \$222,781.70, or 5.96% of the gross earnings, an increase of \$16,716.55. The earnings per mile were \$2,843.55, an increase of \$249.02. These figures are based on a mileage for 1898-99 of 1,314.67 miles, & an average mileage of 1,201.63 in 1897-98.

The number of passengers carried was 1,603,095, an increase of 74,651, & 1,750,761 tons of freight were carried, an increase of 316,185 tons. Of flour & meal, 1,157,250 barrels were carried, an increase of 169,842. Of grain, 2,595,353 bush. were carried, an increase of 1,043,981; of this 30,000 bush. was for shipment at Halifax. Lumber show-

ed an increase of 52,460,215 superficial ft., the total quantity carried being 306,554,031 ft. There was an increase of 20,520 in the number of live stock, of which 109,821 were carried. 494,206 tons of coal, an increase of 124,257, were carried. Of raw sugar, none was carried. Of refined sugar, 26,164 tons, a decrease of 390 were carried. A total of 6,583 tons of fresh fish, a decrease of 1,747, & a total of 5,474 tons of salt fish, an increase of 469, were carried. Of ocean borne goods, other than deals, to & from Europe via Halifax, the aggregate was 34,263 tons, an increase of 8,043. Of this 31,555 was local traffic. In addition 82,260 tons of deals were carried.

In the winter of 1898-99 the removal of snow & ice entailed an expenditure of over \$70,000, about \$12,000 more than the previous year. The permanent way & all structures & works are in good order. The train mileage (or number of miles run by trains) of the year was 4,881,695, an increase of 926,686 miles. The cost per train mile was 75.29c., 8.85c. less than in the previous year. The working expenses per mile of railway amounted to \$2,795.90, an increase of \$26.63 a mile.

The Windsor Branch.—This road is 32 miles in length, extending from Windsor Jct., on the I.C.R., to Windsor. It is operated by the Dominion Atlantic Ry. Co., which pays all charges in connection with the working of the traffic, 2-3 of the gross earnings being allowed the Co., the Government taking the remaining 1-3, & assuming all costs of maintenance of the road & works. This arrangement is carried out under an agreement, dated Dec. 13, 1892, which extends for a further term of 21 years, arrangements similar to those made in 1871. All charges for superintendence & supervision of maintenance of works are borne by the Government; the duty of supervision being performed by the chief officers of the I.C.R. The gross earnings of the Government (1-3 of gross receipts) credited to this branch, amounted to \$42,474.03, an increase of \$5,247.39. The expenses of maintenance amounted to \$12,873.09, a decrease of \$5,308.54, leaving the profit to the Government \$29,600.94. The road has been maintained in good order.

Prince Edward Island Ry.—The total cost of the road & equipment chargeable to capital account at the close of the fiscal year was \$3,790,107.26; there being an addition during the year of \$22,000.00 on account of the shortening of the line between North Wiltshire & Colville, the purchase of a wharf at Mount Stewart, & rolling stock.

The gross earnings were \$165,012.03, & the working expenses \$218,053.01; the expenditure in excess being \$53,040.98. Compared with the previous year, the gross earnings show an increase of \$6,061.42. The railway carried 129,667 passengers, an increase of 3,157, producing \$65,383.11, an increase of \$1,648.50. Of freight there were carried 57,968 tons, an increase of 429, producing \$75,888.52, an increase of \$4,042.92, while the earnings from mails & sundries amounted to \$19,740.40, an increase of \$370. Compared with the previous year, the working expenses were less by \$13,365.73. The train mileage (the number of miles run by trains) was 263,335, an increase of 10,441 miles. The cost per mile run by trains was 82.80c. a decrease of 8.71c.; & per mile of railway \$1,038.35, a decrease of \$63.64. The road, with its buildings & rolling stock, has been maintained in a satisfactory condition.

Railway to the Yukon.—In 1898 & 1899, in accordance with parliamentary provisions, surveying parties were engaged in endeavoring to find a feasible route for a railway, on Canadian territory entirely, to give communication with the Yukon District from a point on an existing Canadian railway, & also from a Canadian port on the Pacific coast, & the approximate cost of such a railway. A sum-

mary of the results obtained forms part of the Chief Engineer's report.

Canals.—The expenditure charged to capital account on the original construction & enlargement of the several canals of the Dominion up to June 30, 1899, was \$76,404,279.16. A further sum of \$15,632,242.84 was expended on the repairs, maintenance & operation of these works, making a total of \$92,036,522. These figures are the aggregate expenditure on specific canals, & do not comprise certain items charged to Canals in general. The total revenue derived, including tolls, & rentals of lands & water-powers, amounted to \$12,079,274.46. The total expenditure for the year ended June 30, 1899, including canals in general, was as follows:—On construction & enlargement \$3,899,877.31, & \$633,315.61 for repairs, renewals, & operation, making a total of \$4,533,192.92. The total net revenue collected for the fiscal year was \$369,044.38, a decrease compared with the net revenue of the previous year of \$38,618.43. The net canal tolls were \$322,285.12, a decrease of \$21,672.01, & the rents received were \$46,659.26, an increase of \$2,608.87. The total expenditure on canal staff & maintenance, repairs & renewals for the year were \$633,315.61, an increase of \$8,559.65, & the total net receipts amounting, as above, to \$369,044.38, the amount of expenditure in excess of receipts was \$264,271.23, compared with an excess expenditure the previous year of \$248,495.63.

The following features of the principal canal traffic during the season of navigation of 1898 will be of interest:—On the Welland Canal, 1,140,077 tons of freight were moved, a decrease of 134,215 tons; of which 732,470 were agricultural products, a decrease of 92,015; & 140,031 produce of the forest; 916,671 passed eastward & 223,406 westward; 1,120,730 were through freight, of which 902,519 passed eastward. Of this through freight Canadian vessels carried 310,286 tons, a decrease of 35,691 tons, & U.S. vessels 810,444 tons, a decrease of 88,329 tons. The total freight passed eastward & westward through this canal from U.S. ports to U.S. ports was 487,539 tons, a decrease of 77,155 compared with the year 1897. The quantity of grain passed down the Welland & the St. Lawrence canals to Montreal was 519,532 tons, a decrease of 40,722 compared with the previous year; of this 40,257 were transhipped at Ogdensburg, as against 89,659 transhipped in 1897. The further quantity of 55,565 tons of grain passed down the St. Lawrence canals only to Montreal, making the total of 575,097 tons. The rate of toll on grain for passage through the Welland (giving free passage through the St. Lawrence canals) was 10c. a ton.

On the St. Lawrence canals 1,439,134 tons of freight were moved, an increase of 207,769; of which 783,976 were east bound through freight, & 29,728 west bound through freight; 952,150 were agricultural products, 348,081 merchandise & 61,502 forest products. Seven cargoes of grain, aggregating 2,436 tons, were taken down direct to Montreal through the Welland & St. Lawrence canals.

On the Ottawa River canals the total quantity of freight moved was 549,986 tons, a decrease of 12,384, of which 538,250 were produce of the forest. On the Chambly Canal 271,336 tons were moved, a decrease of 80,800, of which 155,939 were the product of the forest. On the Rideau Canal 54,946 tons were carried, a decrease of 22,330, 30,238 being the product of the forest. On the St. Peter's Canal 64,490 tons were carried, a decrease of 2,603, of which 50,666 were merchandise. On the Murray Canal 15,543 tons passed, an increase of 2,312, & 4,037 of this were the product of the forest. On the Trent Valley Canal 27,676 tons were moved, of which 26,606 were product of the forest.

On the Sault Ste. Marie Canal the total movement of freight was 3,055,287 tons, being

a decrease of 891,776, carried in 3,675 vessels, the number of lockages being 2,520. Of wheat 9,746,452 bush., & of other grain 3,188,177 bush. were carried; 847,048 barrels of flour, 1,831,731 tons of iron ore & 13,611,580 ft. b.m. of lumber; all these items, except lumber, show a considerable decrease. The total traffic at this point, accommodated by the two canals, the Canadian & U. S., amounted to 21,239,438 tons, an increase of 2,252,749, carried in 17,733 vessels, an increase of 653. The total quantity of wheat carried was 62,439,904 bush., an increase of 6,508,125, & of other grain 26,139,117, an increase of 1,170,981. Of lumber the total was 898,787,580 ft., b.m., an increase of 96,547,424.

As having an interesting bearing on the question of canal versus railway transport of grain from the west, it may be noted that whereas grain & pease passed down to Montreal through the St. Lawrence canals to the extent of 519,532 tons, a decrease of 40,722 over the previous year, the quantity carried to Montreal via the C. P. & G. T. railways amounted to 293,391 tons, an increase of 64,780. The quantity of grain carried to tide-water on the New York State Canals was 459,404 tons, a decrease of 9,958, while the quantity carried by the railways of the state to tide-water amounted to 5,371,500 tons, an increase of 238,760. Of the total freight carried by the canals & railways of the State or New York, respectively (amounting in 1898 to 49,311,030 tons—greater by 5,599,518 tons than in 1897), the proportion carried by the canals has fallen steadily from 68.9% in 1859 & 47.0% in 1869 to 6.8% in 1898.

On the opening of navigation in the spring of 1900, by means of the enlarged canal systems & the intermediate water ways (though not fully completed) passage to vessels draw-

ing 14 ft. of water from Lake Superior to the head of ocean navigation at Montreal will be afforded. The extent of the improved facilities of communication so to be obtained, & their value to commercial interests may be understood from the fact that in place of the old limit of lock dimensions, viz., length, 200 ft.; width, 45 ft.; depth of water on the sills, 9 ft.; the enlarged locks are 270 ft. in length, 45

ft. in width, with 14 ft. of water on the sills, accommodating vessels 255 ft. long & 44 ft. wide. As an index to the carrying power of the new canal works, it may be observed that a typical vessel, the propeller Aragon, whose length is 247 ft. & width 42.6 ft., has passed through the enlarged Welland Canal, drawing 14 ft. of water & carrying 2,212 tons of corn.

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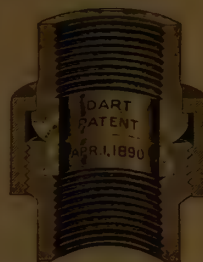


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RAILWAY FINANCE, MEETINGS, &c.

Canada Southern.—The report for 1899 shows that the net earnings were \$301,000, & that the total income was \$462,000, an increase of \$3,000 over 1898, while after payment of charges & dividend the surplus was \$9,000, an increase of \$3,000.

Central Ontario Ry.—At the annual meeting at Trenton May 16 the following were elected directors: S. Burke, H. S. Johnson, C. W. Bingham, T. G. Blackstock, H. P. McIntosh, G. G. Allen, G. Collins.

Central Vermont & Rutland.—At a recent conference of the Central Vermont & Rutland railroad officials at St. Albans, Vt., the joint use of the present railway bridge across Lake Champlain, from Rouse's Point, N.Y., to Alburgh, Vt., was agreed upon. The bridge is owned by the Central Vermont. The project of building a new bridge across the lake by the Rutland road will now be abandoned. This is the spot where, on Jan. 1 last, workmen employed by the different roads had a clash, in which the Rutland men captured a Central Vermont locomotive.

Chignecto Marine Transport Ry.—The annual general meeting will be held in London, Eng., June 6.

The Cuba Co. has been incorporated, with a capital stock of \$8,000,000, to develop the Island of Cuba by the building of railways & otherwise. The immediate purpose is to build a railroad from Santiago west to Havana. Among the subscribers to the capital are Sir Wm. Van Horne, L. P. Morton, of Morton, Bliss & Co., New York; J. W. Mackay, President of the Commercial Cable & Telegraph Co., & of the U.S. & Hayti Telegraph & Cable Co.; J. J. Hill, a director of the Baltimore & Ohio & the Great Northern Ry. All the capital has been subscribed for & arrangements have been made for an immediate working capital of \$2,500,000. At a meeting held in New York recently Sir Wm. Van Horne was elected President; W. R. Cross, Treasurer, & T. S. Beatty, Secretary. According to report the lines upon which options have already been secured, & which will come into the combination are the Sagua road, at a cost of \$3,000,000; the Caibarien, \$2,000,000; the Saviniala, \$5,000,000; the Cienfuegos, \$250,000, & the Jucaro, which it is estimated will cost over \$8,000,000. The Herrera Steamship Line, doing a coasting trade between ports on the northern shore, will also be acquired at a cost of \$1,500,000. This will give a system all over the island, with the important exception that it will not touch Havana. The syndicate has not as yet, so it is said, been able to secure options on the two trunk lines running into the capital.

Since the above was written it is stated that the Co. has bought from the Ponupo Mining & Transportation Co. a controlling interest in the Santiago de Cuba Ry. from Santiago to San Luis, 24 miles, with a branch 12 miles to Ponupo. It is to be used as a part of the trunk line from Santiago to Havana.

Following are extracts from a reported interview with Sir William regarding the scheme: "Not the least important feature of this new company is that it is the first investment on a large scale of American capital in Cuba. We propose to develop the provinces

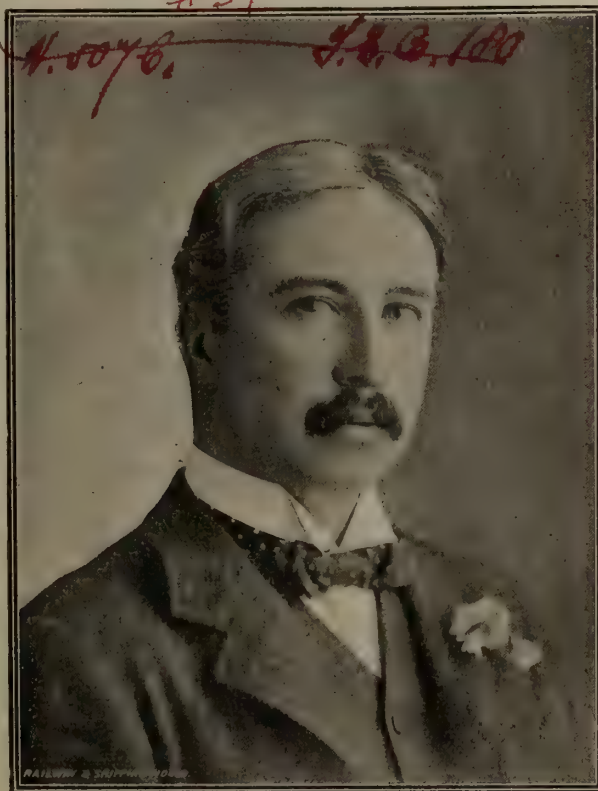
other. To-day Cuba's population is but 1,500,000. We shall develop the eastern half of Cuba. Our scheme does not contemplate an entrance into the western half of the island, but we nevertheless expect to benefit that part of the country by an increased trade. When the C.P.R. was built it traversed a territory of 2,700 miles that was unoccupied, save by the Indians. In order to prevent interest from eating us up, the road had to be constructed within a limited time & we were called upon to do that which railway companies do not ordinarily do—in order to build up the country we started all sorts of business enterprises, which ultimately passed into private hands. It is something of this kind that is contemplated for the rapid development of Cuba."

Dominion Atlantic gross earnings, 4 months to April 28, \$189,149, against \$162,446 for corresponding period.

East Richelieu Valley.—A Montreal despatch says this line has been sold to the Rutland Ry. for \$125,000. The road, which was built in 1898, runs from Iberville to Noyan Jct., 22.80 miles, & forms the connecting link for the Rutland Railway between Burlington, Vt., & other points south, & Montreal & Sorel on the north. It is expected that trains from Boston via the Rutland Ry. will be running into Montreal by Aug. 1.

Erie & Huron.—At the annual meeting, May 18, it was decided to change the head office from Toronto to Walkerville. The following were elected:—President, F. H. Walker; Vice-President, Dr. S. A. King; Treasurer, J. H. Walker; Secretary, H. Lye; other directors, W. Robins, W. Aikman, Jr., S. A. Griggs; General Manager, W. Woollatt. The matter of the proposed agreement for amalgamating with the Lake Erie & Detroit River Ry. Co., was left in abeyance pending the calling of a special meeting by the President.

G.T.R. Government Loan.—In the House of Commons recently, in answer to Mr. Morin, the Minister of Finance said:—"The loan mentioned on page xx. of the Public Accounts, made to the G.T.R., \$15,142,633.34, represents that amount of debentures issued for G.T.R. before Confederation & has stood unchanged at these figures since 1861. The rate of interest was 6% per annum. No portion of either principal or interest has been paid to the Government. The interest due as shown in the Public Accounts, is not compounded. No interest has been charged against the Co. since Confederation. One half year's interest to June 30, 1866, on \$243,406.33 balance found to be due by G.T.R. on settlement of old differences, is included in the special account, \$7,302.18, on same page. By the G.T.R. Act, passed in 1884, the claims of the Dominion were made to rank after the common



THOMAS TAIT,

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NEXT ANNUAL MEETING at Montreal, Oct. 17 & 18, 1900.

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Hope, Ont.; J. W. Tierney, Arnprior, Ont.; C. C.
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NEXT ANNUAL MEETING at Hamilton, Ont., Oct. 10, 1900.

National Association Marine Engineers of Canada.

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ers, Mich.

HON. SECRETARY-TREASURER.—Acton Burrows, 33
Melinda Street, Toronto.

NEXT ANNUAL MEETING at Montreal, Oct. 16, 1900.

stock & securities of the Co. The present
government are, therefore, precluded from
enforcing these claims until after the holders
of the Co.'s common stock have received a
dividend. In the meantime the Co. is entitled
to receive any money that may become due
to it for any service rendered to the Govern-
ment."

G.T.R. Suit.—The case of Macdonald vs.
the G.T.R., recently before the Trial Court in
Toronto, was an action for damages for value
of certain goods shipped at Glasgow, Scot-
land, to be delivered to defendant at Portland,
Maine, & which were destroyed by fire on
defendant's line in the State of New Hamp-
shire. It was conceded that the loss is one
for which, according to the terms of bill of
lading & shipping receipt, defendant was not
to be answerable, but it was contended that
the loss, owing to the negligence of the ser-
vants of the defendant, the provisions of the
bill & receipt relied on by defendant are not
binding on plaintiff by reason of sec. 246 of
the Railway Act. Held, that the Railway
Act is not applicable to a railway situate in a
foreign country, though operated by a com-
pany incorporated by or under the authority
of the Parliament of Canada. Whether Par-
liament has power to bind a company incor-
porated by it, as to terms upon which it will
carry goods delivered in a foreign country, it
is not necessary to consider, because it has
not by the Act assumed to exercise it. Look-
ing at the various provisions of the Act, &
especially sec. 3, it is manifest that it applies
only to railways over which that Parliament
has jurisdiction. Chief Justice Meredith dis-
missed the action with costs.

Great Northern of Canada.—Some changes
have been made in the official list, Hon. P.
Garneau, Quebec, retains the Presidency;
Hon. J. Sharples, heretofore Vice-President,
becomes 1st Vice-President; Col. J. Mc-
Naught, New York, has been elected 2nd
Vice-President, & H. H. Melville, Boston, 3rd
Vice-President. J. G. Scott continues as
Secretary & General Manager. E. Ling has
been appointed Treasurer. Fifty-year 5%
gold bonds, to the amount of \$6,000,000, have
been authorized at the rate of \$20,000 a mile.
Bonds covering 171 miles from Quebec to a
junction at Hawkesbury with the Canada At-
lantic, have been deposited with the Central
Trust Co., & will be sold on completion of the
road. The authorized capital stock is \$3,000,-
000, all common, of which \$2,000,000 has been
issued. A 10 year contract has been made
with the Canada Atlantic for interchange of
traffic on a mileage basis. The Co. has been
granted the use of the Government docks at
Quebec, & all steamships run in connection
with the road will be exempt from harbor, port
& other dues for 5 years. See also under
"Railway Development."

The appeal in the case of the G.N.R. Co.
vs. Campbell came before the Supreme Court
at Ottawa May 7. The appeal is against two
judgments of the Court of Review at Montreal
affirming judgments for \$14,700 in the Superior
Court against the Co. on three promissory
notes, of which payment is disputed on the
ground that they were given without consid-
eration or proper authority in connection with
the construction of a line of railway from St.
Andrews to Lachute by C. N. Armstrong, a
contractor, who undertook the work in 1891,
after the Co. had abandoned the scheme.

Great Northern, U.S.A.—The Co. has is-
sued a circular which states that 10,000 shares
of the Co.'s stock has been placed with a new
company, to be known as the Great Northern
Employees' Investment Association, Ltd. Em-
ployees whose salary is under \$3,000 a year &
who have been 3 years in continuous service
with the railway may subscribe for not more
than \$5,000 of this stock at par. This issue
is the balance of the \$100,000,000 authorized
issue.

**Intercolonial Accounts with C. P. R. &
G.T.R.**—The Minister of Railways recently
stated in the House of Commons that the
C.P.R.'s share of passenger fares & freight
charges collected off the I.C.R., & accounted
for to the C.P.R., for the years ended June
30, 1899, & June 30, 1897, is as follows: 1899,
Passenger fares, \$178,534.89; freight charges,
\$354,646.21. 1897, Passenger fares, \$111,-
040.22; freight charges, \$323,467.18. The
G.T.R.'s share of passenger fares & freight
charges collected off the I.C.R., & accounted
for to the G.T.R. for the same years, is:
1899, Passenger fares, \$25,559.15; freight
charges, \$404,838.60. 1897, Passenger fares,
\$27,553.50; freight charges, \$525,240.15.

Lehigh Valley.—Wall Street recently re-
ceived the rumor that the Pennsylvania R.R.
had acquired control of the Lehigh Valley R.
R., & had purchased 66,600 shares of the lat-
ter's stock, through outside parties, in the
same manner that it obtained a controlling in-
terest in the Baltimore & Ohio, the Ches-
apeake & Ohio & the Norfolk & Western. The
figure given on the stock purchase is \$32.50
a share, the entire sum of the transaction
amounting to \$2,464,000. Pennsylvania offi-
cials declared as unfounded the reports of the
purchase, & it is believed that if a sale of 66,-
600 shares of Lehigh Valley stock was pur-
chased, as rumoured, the real purchaser was
the New York Central, not the Pennsylvania.
A few weeks ago the 75,000 shares of the
Lehigh Valley stock which J. P. Morgan pur-
chased from the trustees of the Asa Packer
estate were transferred to the Vanderbilts.
The Vanderbilts, it is safe to assume, are
now the controlling power in Lehigh Valley
R.R. affairs. Whether or not the Pennsylv-
ania has a joint interest in that control is not
known, but to all outward appearances the
New York Central will be the dominating fac-
tor in the deal, since under the constitution of
the state of Pennsylvania, the Pennsylvania
R.R. cannot absorb a competing or parallel
road. Through the Pennsylvania, Schuylkill
Valley, the Northern Central, the Sunbury &
Hazleton branches & the Nanticoke branch
the Pennsylvania competes in Lehigh Valley
territory on direct terms.—Railway World.

Massachusetts Valley.—At a meeting of di-
rectors May 10, J. G. Foster & C. W. Case, of
Sherbrooke, Que., were elected directors in
place of the late A. T. Foster & T. J. Tuck.
J. G. Foster was elected Vice-President. S.
Stevens, Stanstead, Que., was elected Secre-
tary in place of J. E. Foster, resigned. This
line is leased to the Boston & Maine.

The Montreal Incline Ry. Co.'s lease from
the city expired on May 1, & has not been re-
newed, but the Co. is still operating the line.
The main point at issue is the question of
fares, the City Council demanding a reduc-
tion. (April, pg. 103.)

Newfoundland.—A Halifax despatch of
May 17 said—"The Newfoundland Ry.,
which is owned & controlled by R. G. Reid,
may soon pass into the hands of a company,
together with the fleet of coastal steamers &
the telegraph service, which are also control-
led by Mr. Reid. He owns also half interests
in the electric railway in St. John's, & has a
monopoly of the greater part of the minerals
of the colony. He has exclusive lumber areas
as well. Cable advices from St. John's, Nfld.,
say that Mr. Reid is endeavouring to float a
company with a capital of \$27,000,000 to take
over all his belongings, rights & franchises, &

conduct & operate the same. It is understood that the greater part of the capital can be obtained in England, but before the scheme can be accomplished it is necessary for Mr. Reid to have the sanction of the Newfoundland Government. An effort is now being made to secure this." Being interviewed in Montreal, Mr. Reid said the report was not exactly correct. It was true that he was taking steps to consolidate his interests in the hands of his family to provide for future contingencies, but that was the only basis for the report.

Quebec Central.—Earnings for April, \$42,103.19 against \$41,009.47 in April 1899; working expenses \$24,655.84 against \$22,502.64; net earnings \$17,447.35 against \$18,506.83. Earnings Jan. 1 to April 30th, \$138,954.88 against \$125,856.21 for corresponding period; working expenses \$101,460.87 against \$91,872.45; net earnings \$37,494.01 against \$33,983.76.

The directors' report for 1899 shows that the net revenue amounted to \$169,145 against \$147,354 for 1898. After providing \$82,650 for the year's interest paid & accrued upon the prior lien bonds & debenture stock, there remains a net balance revenue of \$86,495 which, added to the \$12,203 brought forward, makes a total of \$98,698, out of which interest at the rate of 2½% has been paid on the income bonds, leaving a balance of \$24,676. A proposal for the sub-division of the existing income bonds into two classes of security is being formulated by the directors, & will in due course be laid before the bondholders.

Quebec & Lake St John earnings for 3 months to Mar. 31, show an increase of \$20,238, as compared with corresponding period.

South Shore.—At a meeting of directors in Montreal, May 14, it was decided to issue \$1,000,000 4% debentures, payable in 10 years to complete the line to Point Levis. The railway, as its name implies, runs along the south side of the St. Lawrence, between St. Lambert & Chaudiere Jct. The terminus, however, will shortly be at Point Levis. When the Co. was incorporated in 1894 it took possession of the Montreal & Sorel Ry., & built the Sorel bridge at a cost of \$150,000, bringing the terminus of the system into the centre of the latter town. The Co. had not then received any subsidy from the Government, & the original intention of the extension to Point Levis was considerably upset by the purchase of the Drummond County Railway by the Government, and the extension of the I.C.R. into Montreal, for it had been the aim of the S.S. Co. to handle the business of the I.C.R. between Point Levis & Montreal. Last year the Co. was granted a subsidy of \$150,000 on the 3 bridges it had erected, & a further grant of \$3,200 a mile for the 93 miles between Sorel & Chaudiere Jct. The Quebec Government also made a grant of \$75,000 for bridge construction. With the assistance of these subsidies the Co. pushed on the extension of the road towards Levis. The railway is owned by the estates Tourville, Leduc, & J. M. Fortier & H. Beauchemin.—See also under this head in Railway Development department.

Toronto, Hamilton & Buffalo.—The city of Brantford has accepted \$12,500 preferred stock of this Co. in exchange for \$25,000 common stock previously held.

White Pass & Yukon.—We are officially informed that the press report, stating that the head offices have been removed from Seattle, Wash., to Skagway, Alaska, is not altogether correct. The General Auditing Department has been removed from Seattle to Skagway. The Traffic Manager is located at Seattle, but has a representative and office at Skagway. The General Manager retains Seattle as his residence, but maintains an office in Skagway, the business there, in his absence, being in charge of his chief clerk, I. W. Young.

Grand Trunk Earnings, Expenses, &c.

The following figures are issued from the London, Eng., office:

GRAND TRUNK RAILWAY.

Revenue statement for Mar., 1900:

	1900	1899	Increase	Decrease
Gross receipts....	£360,000	£354,200	£ 5,800	.....
Working expenses..	256,000	238,100	17,900	.....
Net profit.....	£104,000	£116,100	.....	£12,100

Aggregate Jan. 1 to Mar. 31, 1900:

	1900	1899	Increase	Decrease
Gross receipts....	£1,032,200	£967,200	£65,000	.....
Working expenses..	749,900	688,200	61,700	.....
Net profit.....	£282,300	£279,000	£ 3,300	.....

DETROIT, GRAND HAVEN AND MILWAUKEE RY.

Revenue statement for Mar., 1900:

	1900	1899	Increase	Decrease
Gross receipts....	£16,200	£15,400	£ 800	.....
Working expenses..	14,300	13,100	1,200	.....
Net profit....	£ 1,900	£ 2,300	.....	£ 400

Aggregate Jan. 1 to Mar. 31, 1900:

	1900	1899	Increase	Decrease
Gross receipts....	£44,200	£41,700	£2,500	.....
Working expenses..	38,400	37,200	1,200	.....
Net profit.....	£ 5,800	£ 4,500	£1,300	.....

NOTE.—Cable message adds, "Decrease in net on account of heavy snow storms."

TRAFFIC RECEIPTS OF THE SYSTEM.

Traffic receipts, Jan. 1 to Apl. 30:

	1900.	1899.	In-crease.	De-crease.
Grand Trunk....	£1,389,272	£1,289,012	£100,260	.....
D., G. H. & M..	59,861	56,558	3,303	.....
Total.....	£1,449,133	£1,345,570	£103,563	.....

April Railway Earnings.

Railways gross earnings reports for April covering 117 railroads, aggregating 102,004 miles, show an increase of \$5,954,421 over the corresponding month last year, or 12.69%. The New York Central leads with a gain in gross earnings of \$503,116. Other roads making large gains are the Baltimore & Ohio, \$479,014; the Northern Pacific, \$373,491; the Chicago, Milwaukee & St. Paul, \$347,704; the Great Northern, \$329,760; the Mexican Central, \$269,371; & the Canadian Pacific, \$264,688. Only one of the larger roads shows a decrease, the International & Great Northern reporting a falling off of \$78,490, attributable to the floods in Texas. Of the entire 117 roads, only 16 show losses. The gains of the New York Central are partly based on some losses in the corresponding month a year ago due to the delay in the opening of lake navigation. They also include \$145,347 increase from the Fall Brook line taken over since the report of the year before. The increase of the 13 roads of the Northwestern & North Pacific group aggregates \$1,560,000; the 11 roads of the Southern group report gains of \$870,000; 18 roads of the Middle & Middle Western, \$760,000; 10 of the Southwestern, \$410,000, & 6 trunk lines, \$1,110,000. Aside from general activity of trade, three special advantages for the month are to be noted. The grain movement in the West was heavier than a year ago, there was a marked improvement in the live-stock movement, & there was not the delay of 1899 in the opening of lake navigation. Among the disadvantages are the falling off of the cotton movement in the South, due to bad weather & floods; & labor troubles in various sections of the country. In winter & spring wheat the receipts at Western primary markets for the four weeks ended April 28, were 11,000,000 bushels, against 9,750,000 bush. a year ago. Receipts of corn increased from 8,900,000 bush. to 16,573,000, a gain of 86%. The receipts of wheat, corn, oats, barley & rye together aggregate 40,000,000 bush. this year, against 28,333,000 for the corresponding

period of 1899. The contraction in the movement of cotton was directly the result of the smaller crop of this season. The shipments overland for the month were but 52,634 bales, against 97,693 in 1899 & 92,560 in 1898. The receipts at Southern outports for April, 1900, were 190,374 bales, against 201,214 last year & 262,420 the year before. The gains in railway earnings are cumulative for several successive years. The increase of \$5,954,421 for April this year follows an increase of \$1,818,638 in 1899; & \$5,967,869 in 1898, besides smaller increases in the years preceding.—Railroad Gazette.

RAILWAY APPOINTMENTS, Etc.

Canada Atlantic & Plant Steamship Co.—M. F. Plant, President & Manager, because of pressure of other interests, has relinquished the management of the Plant line service between Boston & the Maritime Provinces, & H. L. Chipman, of Halifax, has been appointed Manager of the Boston branch. For several years previous to the death of H. B. Plant, head of the entire Plant system, in 1899, Mr. Chipman had been agent of the line at Halifax. He became Superintendent at that place at the time of Mr. Plant's death.

Canada Atlantic Ry., Canada Atlantic Transit Co.—W. H. Burk, formerly contracting agent, has been appointed agent at St. Paul, Minn., with office at 184 E. Third Street, & E. W. Bennett has been appointed contracting agent at Minneapolis, with office in Grain Exchange, reporting to H. L. Moore, agent.

Canadian Northern.—D. B. Hanna has heretofore been General Superintendent at Winnipeg of this line from Gladstone Jct., Man., northwesterly, & Superintendent of the Manitoba & Southeastern, & of its subsidiary line the Minnesota & Manitoba from Winnipeg southeasterly through Manitoba & Minnesota to the Rainy River. The Manitoba & Southeastern having been amalgamated with the C.N.R., remains under his jurisdiction, & he has added to it the Ontario & Rainy River Ry., now under construction from Thunder Bay to Rainy River, which has also been amalgamated with the C.N.R. The Port Arthur, Duluth & Western has also been placed under him.

Canadian Pacific.—F. Walker, Train Dispatcher at Fort William, has been appointed Trainmaster of the Thunder Bay, Wabigoon & Rat Portage sections of the Western division, with headquarters at Rat Portage, W. A. Brown, who has been Trainmaster for some time, resuming his former position as a passenger conductor.

Jno. Promberger, who has had extensive experience in similar work, has been given charge of the docks & freight handling at Fort William, the agent having been relieved of these duties.

Chicago & Grand Trunk.—Roadmasters J. Hamilton & T. Fogerty being transferred to construction work, J. Mullen, Roadmaster, is transferred to 25th district, between Pt. Huron & Lansing, with headquarters at Durand, Mich. W. Lane is appointed acting Roadmaster 25th & 26th districts, between Lansing & South Bend, with headquarters at Battle Creek, Mich. J. Nolan is appointed acting Roadmaster on the 27th district between Detroit & Owosso, & the 25th district (C.S. & M.) between Durand & West Bay City, with headquarters at Pontiac, Mich.

Duluth, South Shore & Atlantic.—G. W. Hibbard, General Passenger Agent, has not resigned, as reported, to accept a similar position with the Rutland R.R. at Rutland, Vt. C. B. Hibbard is the Rutland appointee.

Grand Trunk.—J. Whitcher has been appointed Water Service Inspector, with headquarters at London, vice J. T. Eames, resigned.

Telephone sign electro-etched in metal in July 1900

Enameled Iron Station Names.

Guaranteed not to fade or in any way to perish from exposure.

As used on the Canadian Pacific & Canadian Northern Railways. Sign 12 ins. high. Letters 9 ins. high. Length according to number of letters in name. The sign shown is 45 ins. long.

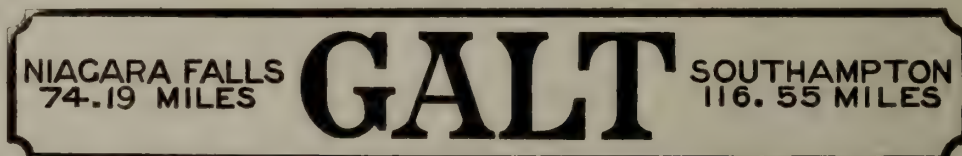


Style no. 1, White letters on blue ground.

Twenty-nine of these signs supplied the C.P.R. Co. for the Crow's Nest Pass Ry. averaged 6½ ft. in length, the longest being 11 ft. 2 ins. & the shortest 3 ft. 9 ins.

Mr. Wm. Whyte, Manager of the Canadian Pacific Railway Co.'s lines west of Fort William, writes,—“I have pleasure in stating that I am very well satisfied with the enameled iron signs supplied by the Acton Burrows Co. for station names on the western lines of this Company. They have now been in use for some time & have proved very satisfactory. The lettering is clear & distinct & the signs have proved to be impervious to the weather. They have a brighter & neater appearance & are very much more satisfactory than painted wooden ones, & considering their lasting qualities will be found more economical.”

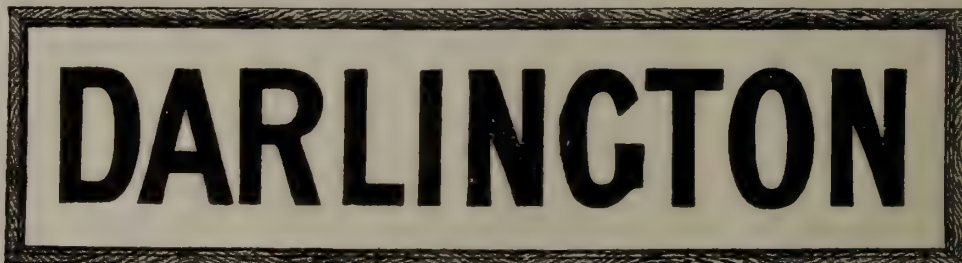
Mr. H. P. Timmerman, General Superintendent of the Atlantic Division of the Canadian Pacific Ry., writes,—“The enameled iron station names supplied by the Acton Burrows Co., in 1898, for a number of stations on this division, have proved very satisfactory. The letters are well formed & distinct, & the signs present a clean, bright appearance, being just as good now as when they were new.”



Style no. 2, as used on the Grand Trunk Ry. System. Black letters on white ground. This sign is 14 ins. high by 7 ft. long. Length varies with number of letters in name of station.



Style no. 3, as used on the Pennsylvania Railroad. White letters on black ground. This sign is 12 ins. high by 6 ft. long. Length varies with number of letters in name of station.



Style no. 4, as used on the Northeastern Railway of England. Dark brown letters on light ground, framed in wood. This sign is 6 x 18 ft.

These signs have long been used on most European railways, & for a number of years on the Pennsylvania R.R., the New York Central & Hudson River R.R., the Manhattan Elevated R.R., the Long Island R.R., & many other lines in the United States. They are also being extensively used in Canada & are giving complete satisfaction as the best outdoor signs produced.

They can be made in any color, size, or shape.

Estimates promptly furnished on application.

The Acton Burrows Co., 29 Melinda Street, Toronto.

Sole Agents for Canada for The Imperial Enamel Co. of Birmingham, England.

G. A. Morency has been appointed chief clerk of the General Passenger & Ticket Agents' department in succession to H. G. Elliott, promoted. J. N. Melville succeeds Mr. Morency as excursion clerk. Lorne MacDonald has been appointed chief clerk in the freight traffic department. He was secretary to G. B. Reeve, General Traffic Manager, having been appointed to that position when J. E. Dalrymple became a division freight agent of the Co.

Richelleu & Ontario Navigation Co.—Capt. T. J. Craig, of Kingston, has been appointed to succeed the late P. McIntyre as freight agent at Toronto.

Mainly About People.

D. D. Mann has removed from Montreal to Toronto, where he recently purchased a residence, 161 St. George St.

Wm. King committed suicide at Perth, Ont., May 23, by hanging himself in his stable. He was formerly C.P.R. freight agent.

G. B. Reeve, ex-General Traffic Manager of the G.T.R., & Mrs. Reeve, arrived at their new home, La Pomelo Ranch, La Mirada, Cal., May 9.

Mrs. Notman, wife of the Assistant General Passenger Agent of the C.P.R., & her family have removed from Montreal to Toronto to join Mr. Notman.

Lord & Lady Mount-Stephen have gone to Homburg, Prussia, where they have taken apartments formerly occupied by the Prince of Wales at Ritter's Park Hotel.

H. G. Elliott, who has been promoted to the position of Assistant General Passenger & Ticket Agent of the G.T.R. at Montreal, was born at Chambly, Que., & was for many years city ticket agent of the Central Vermont at Montreal, entering the G.T.R. service in May, 1897.

Alex. Fraser, contractor, Toronto, who died Feb. 27, left an estate valued at about \$68,000, of which about \$50,000 is represented by interests in the businesses of A. Fraser, contractor, G. P. Magann, contractor, the Magann-Fawke Lumber Co., & the G. P. Magann Air-brake Co.

D. G. Ross, who has been appointed Assistant Superintendent of the C.P.R. at Winnipeg, has been Chief Train Despatcher of the Manitoba & Northwestern Ry. for the past 5 years, previous to which he was a train despatcher on the C.P.R. at Winnipeg & other points.

Mrs. Broughton, wife of the late F. Broughton, formerly General Manager of the Great Western Ry. of Canada, died at Hamilton, Ont., May 16, aged 73. She was buried at Eastwood, Ont., the G.T.R. placing a special car at the disposal of the family. She left an estate valued at \$20,460, which will be divided among the sons & daughters.

G. W. Vaux, recently promoted to the position of Assistant General Passenger & Ticket Agent of the G.T.R. at Chicago, has been in the general passenger office of the G.T.R. at Montreal for 18 years, filling every office from clerk to chief clerk, holding the latter position for 7 years until 1899, when he was appointed Assistant General Passenger & Ticket Agent at Montreal.

W. Cross, recently appointed Assistant to the Manager of the C.P.R. Western lines in the Mechanical Department, was born in Birkenhead, Eng., in 1842. He entered the G.T.R. service at Montreal in 1863 as journeyman, afterwards becoming foreman of the erecting shops. In 1882 he was appointed Master Mechanic of the Eastern division of the C.P.R., & in 1887 Master Mechanic of the Western division at Winnipeg, subse-

quently becoming General Master Mechanic of the Western & Pacific divisions.

The two men who are nearest to the Czar of Russia, and who, perhaps, have a greater influence than any others in shaping the commercial policy of the present government of that empire, are M. de Witte, the Imperial Minister of Finance, who, 16 years ago, was a station agent at a small town on one of the railways of Russian Poland; the other is Prince Michel Hilko, who, when little more than a boy, left St. Petersburg to seek his fortune, learned mechanical engineering in Philadelphia, & is now the Imperial Minister of Railways, and a member of the Czar's Cabinet.

Theodore Van Horne, a younger brother of Sir Wm. Van Horne, died at Bloomington, Ill., May 22. He was born in 1849, in Will County, Ill., where Sir William was born in 1843. In 1868 he went into the telegraph service of the Chicago & Alton Ry., continuing in it until his death. Of late years he suffered from kidney disease, his last illness being of three weeks' duration. Besides Sir William he leaves two sisters & another brother, Mrs. Leffler, of Hickory County, Me.; Miss Mary Van Horne, of Montreal, & A. C. Van Horne, an engineer on the Chicago & Alton. Sir William attended the funeral at Joliet, Ill.

George Turnbull Bell, recently promoted to the position of General Passenger & Ticket Agent of the G.T.R. system, was born at Montreal, Sept. 7, 1861, & entered railway service in 1878, since which he has been consecutively, 1878 to Nov. 1880 clerk of the car mileage office Great Western Ry.; Nov. 1880 to Nov. 1882 rate clerk & stenographer to General Passenger Agent, same road; Nov. 1882 to 1884 chief clerk to Assistant General Passenger Agent, G.T.R.; Jan. 1884 to April 25, 1892, chief clerk to General Passenger Agent; April 25, 1892, to 1899 Assistant General Passenger Agent; 1899 to 1900 First Assistant General Passenger & Ticket Agent at Chicago.

Wm. P. Fitzsimmons who has been appointed Division Freight Agent of the G.T.R. at Detroit, in charge of eastbound traffic from connections at Detroit & Port Huron, & all westward bound traffic from connections at the Niagara frontier destined to points west of the Detroit & St. Clair rivers, was born in Detroit, Oct. 27, 1868. He entered the service of the G.T.R. April 15, 1884, as office boy. In turn he occupied every desk in the general freight department, including that of travelling freight agent. In Jan. 1897 he went to Montreal as Secretary to General Freight Agent Loud. In Nov. 1898, he was made chief clerk in the general freight agent's office, the position he has recently vacated.

W. E. Davis, recently promoted to the position of Passenger Traffic Manager of the G.T.R., was born in Niagara county, N.Y., 1850. He began work as office boy in the Hannibal & St. Joseph R.R., now a part of the Burlington System, at the age of 18, & his early railway education was obtained on Western roads. He came to what is now part of the G.T.R. System (Chicago & Lake Huron R.R., now Chicago & Grand Trunk) Aug., 1877, in charge of the passenger business of that Co., which later on included the Detroit, Grand Haven & Milwaukee Ry., Toledo, Saginaw & Muskegon Ry., & Cincinnati, Saginaw & Mackinaw R.R.; & at the time of the consolidation of all the G.T. lines under the present management, he was removed from Chicago to Montreal April 1, 1896, as General Passenger & Ticket Agent.

Jno. Pullen, recently appointed General Freight Agent of the G.T.R., entered the Co.'s service in 1877 as a boy in the office of Assistant General Freight Agent, G. B. Reeve, at Sherbrooke, Que. In 1878 he was transferred to the general freight office,

Montreal, & in 1880 went to Chicago as secretary to Traffic Manager Reeve, of the Chicago & G.T.R. In 1890 he was appointed agent of the West Shore Fast Freight Line, & subsequently agent of the Reading Despatch in Chicago. On the reorganization of the G.T.R., under the present management, in 1896, he was appointed Division Freight Agent at Stratford; in 1897 Division Freight Agent at Hamilton, Ont., & when the Central Vermont Ry. passed under the control of the G.T.R. on May 1, 1899, he was appointed General Freight Agent of that company at St. Albans, Vt.

Wm. Woollatt, who has recently been promoted to the General Managership of the Lake Erie & Detroit River Ry., was born April 2nd, 1855, at Weeden, Hertfordshire, Eng. He came to Canada in April, 1872, & entered office of Mechanical Superintendent of the Northern Ry. at Toronto in May, 1872; in April, 1877, was transferred to the General Freight & Passenger Agent's office of same Co. as stenographer, & from 1879 to 1888 occupied position as Chief Clerk in the General Passenger Department & Audit Department. In consequence of the fusion of the Northern Ry. with the G.T.R., in June, 1888, he was transferred to the General Passenger Dept. of the G.T.R. at Montreal; remained with that Co. until end of that year; in Jan. 1889, was appointed General Freight & Passenger Agent of the Lake E. & D.R. Ry., title changed same year to Traffic Manager, Jan., 1891, appointed General Superintendent & Traffic Manager, & in May, 1900, appointed General Manager.

Thomas Tait, whose portrait appears on pg. 161, is a son of Chief Justice Sir Melbourne Tait, & was born at Melbourne, Que., July 24, 1864. He was educated at the High School, Montreal, & entered railway service in Sept., 1880, as a clerk in the Audit office of the G.T.R., Montreal, where he remained until July, 1881, from which date to Oct., 1881, he was clerk in the office of the Assistant to the President of the Chicago, & G.T. From Oct., 1881, to Apl., 1882, he was clerk in Solicitor's office G.T.R., Belleville, Ont., & from Apl. to Oct., 1882, clerk General Manager's office, G.T.R. In Oct., 1882, he went into the C.P.R. service, since which he has been consecutively, Oct., 1882, to Sept., 1886, private secretary to Vice-President & General Manager; Sept., 1886, to May 23, 1887, clerk General Traffic Manager's office; May 23, 1887, to Feb. 1, 1889, Assistant Superintendent at Moosejaw, Assa.; Feb. 1, 1889, to Mar. 12, 1890, Superintendent Ontario division at Toronto; Mar. 12, 1890, to Mar. 1, 1893, General Superintendent Ontario & Quebec division; Mar. 1, 1893, to May 1897, Assistant General Manager; & since then Manager of lines east of Fort William. Mr. Tait is an Anglican. In 1890 he married Emily St. Aubert, daughter of G. R. Cockburn, Toronto. He resides at 7 Ontario Avenue, Montreal, & is a member of the St. James', Toronto, Rideau & Union clubs.

The N. L. Piper Railway Supply Co. has been incorporated under the Dominion Companies Act, with a capital of \$40,000, to carry on the business of manufacturing, selling, purchasing & dealing in railway, ship & electric supplies, the purchase, selling & holding of patent rights in any way relating to such supplies, & the acting as agents for the patentees or owners of such patents, & for acquiring from the firm of Noah L. Piper & Son the business now carried on by them in Toronto.

The demand for lumber on the Pacific coast is as active as it is in the East, & it is likely that 50,000,000 ft. will be shipped from Vancouver alone before Nov. A large portion of this will go to Shanghai to be used in construction on the Trans-Siberian railway.

Electricity in the Transportation Field.

In no branch of science has the century now fast nearing its end witnessed more rapid advances or remarkable applications than in electricity, which in a brief space of 100 years, has developed from a scientific curiosity to one of the most potent forces that enter into our industrial life. It is still but ill-understood, & not even adequately definable. So vast have been the changes which it has already wrought in chemistry & manufactures, & so powerful may be the influence which it is destined to exert over the arts, that one involuntarily looks into the future for a glimpse of its possibilities in the twentieth century.

Present developments give no reason to expect that electricity will ever completely supersede steam as a motive power of great railway systems. In the transportation of heavy loads through long distances, the use of electricity is accompanied with many inconveniences & disadvantages. The steam-locomotive, on the other hand, ever remarkable for its great tractive power & high speed, has, in late years, been so considerably improved that it will undoubtedly hold its own in the economical, long-distance haulage of freight. Improvements in smoke-consuming devices, in constructions for lessening vibration, & in arrangements for increasing the heating surface & boiler capacity, follow one another so rapidly that the merits of concentrated power, cleanliness & compactness are almost as characteristic of the locomotive as they are of the electric motor. But, although electricity may never be exclusively used as the motive power of our large railroads, there are certain conditions under which it may be far more satisfactorily employed than steam. Scarcity of coal & a superabundance of water-power, for example, may favor the construction of electric rather than steam roads. In Switzerland

& the Alpine regions of Italy, short trains of moderate speed, running at frequent intervals & carrying but few passengers, are chiefly employed, electric power being used for reasons of economy; while there is every indication that electricity will be exclusively used in the subway systems of the future.

For suburban travel & the street railways of large cities, electricity is admirably adapted to meet the requirements of punctuality, security, & speed. Electric power is eminently suited to the needs of the small road; the cars are small, the trains short, the superstructure light, & the system cleanly. Whether the over or the underground trolley or the storage battery will be the prevailing system, it cannot be doubted that for city & suburban service electricity will remain the best form of motive power. So widely is it now employed on tramways, that it practically monopolizes the field; & further advancement must be looked for only in intensive improvement, in increased efficiency & safety.

That electricity will actually supplant steam on short, industrial roads, such as those that connect mines with foundries, & factories with shipping wharves, is as certain as that it will be generally employed in city & suburban traffic. The small electric locomotive of great tractive power, easily controlled, ever ready for service, has proven itself of untold value, & to a certain extent, has already taken the place of the steam locomotive. The field which is here opened to electricity is not so limited as one might be inclined to imagine. The centralization noticeable in all branches of commerce, the combination of small factories to form giant industries, is becoming more pronounced with each succeeding year. Industrial plants, which cover acres of ground, & which swarm with workmen, require a quick means of transporting material from

building to building, & for this purpose electricity is the most convenient & under many conditions, the cheapest form of energy that could possibly be employed. In many of these establishments large generating plants have been already built to drive the many motors, cranes, machine-tools, & labor-saving appliances, & the utilization of the same current employed in driving these machines, to operate short railways would be both practicable & economical.

Transportation by water will be affected by electricity less markedly than transportation by rail. The electric appliances which are now largely used on European canals have contributed much to increase the efficiency of these & other waterways. Electrically-operated cranes, elevating apparatus, & gates are multiplying; & the mule that now reigns supreme over the towpath is gradually giving way to the small, powerful, electric locomotive, capable of towing several barges at a time. On ocean-going steamers, electricity will occupy a minor place. At present it is employed in lighting & in operating the steering-gear & various auxiliary machines. On warships it will find a more extensive application. Although it will not supersede steam as a means of propulsion, it will be more widely used than at present in the manipulation of turrets, guns & ammunition hoists, & the operation of deck winches & boat cranes.

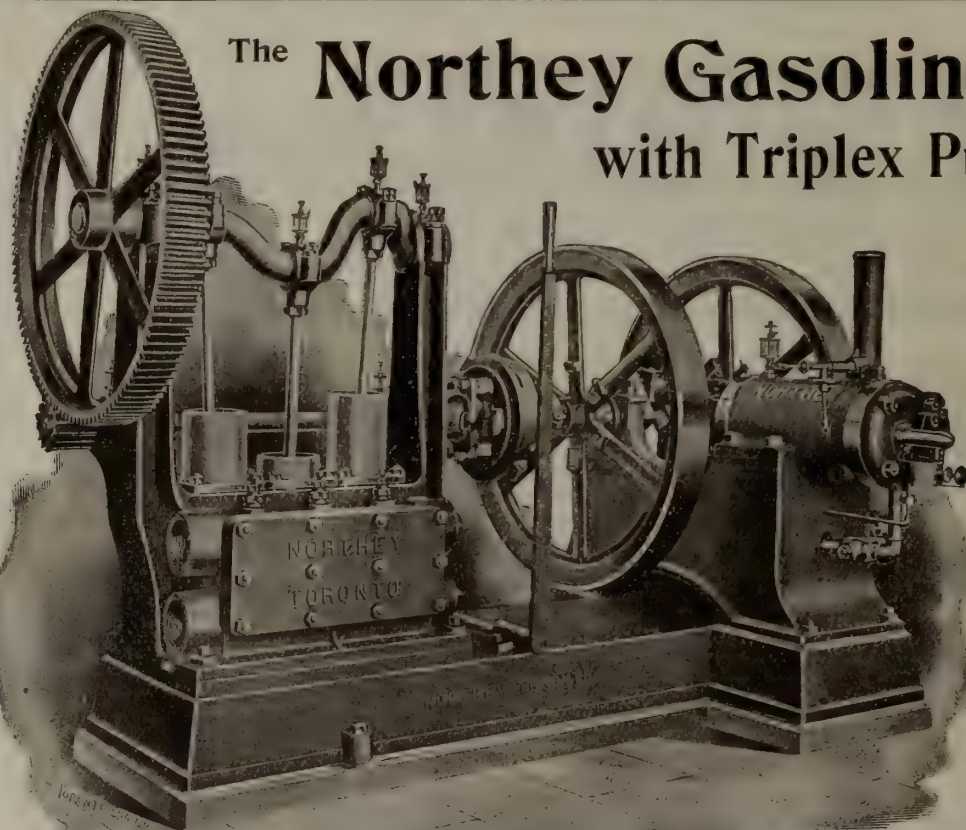
Electric communication on land, in spite of its phenomenal development, may still be vastly improved in economy. Our present system of rapid telegraphy is expensive; the sending of a message by wire is even yet far too costly for the ordinary affairs of mankind. If the twentieth century inventor will concern himself with increasing the efficiency & reducing the cost & expense of existing means of electric communication, he will confer

The Northey Gasoline Engine with Triplex Pump, for Tank Duty.

We here illustrate one of our Triplex Pumps operated by the Northey Gas and Gasoline Engine for railroad tank pumping. The Northey Engine offers the best example of an easily operated—safe—inexpensive—handy power on the market. The pump used is an improved model of our Triplex Power Pump. This combination gives excellent results, and is built with a view to ensuring an ample margin of strength for heavy, continuous service. We have recently installed two such plants at Coteau Junction, Que.

Booklet and Catalogs on request.

The Northey Co., Limited,
1032 King St. Subway,
TORONTO, ONTARIO.



more solid benefit than by solving the problem of electrical vision or elaborating a system of wireless telegraphy.—Scientific American.

Railway Equipment Notes.

The Algoma Central has ordered 50 more pressed steel cars.

The Sydney & Louisburg Ry. recently received another large locomotive.

Rhodes, Curry & Co. are doing a very large business at Amherst, N.S. During the past 12 months they paid the I.C.R. about \$50,000 for freight.

The Great Northern of Canada is said to have bought 7 locomotives in Chicago. It is also reported to have bought 150 box, & 50 platform cars there.

The White Pass & Yukon has added 2 sleeping cars to its equipment. They were shipped from Seattle to Skagway, & others will be added later in the season. The Co. is building 200 freight cars at Skagway.

Northern Pacific locomotives are equipped with electric headlights, & incandescent lights are provided on the under side of the running boards & beneath the boiler, thus enabling the driver & firemen to examine any part of the machinery with ease.

The Ottawa & Gatineau Ry. is in the market for four 1st class passenger coaches, 1 baggage car, & 25 box & flat cars. The rumor that the Co. had ordered 4 cars for excursion purposes, mentioned in our last issue, was incorrect. The allied line, the Pontiac Pacific Jct., is also in the market for one 1st class passenger coach, & 15 box & platform cars. These lines lost 13 cars in the recent Hull-Ottawa fire.

Orders have not yet been placed for the 20 or 30 locomotives & 500 box cars which it is proposed to buy for the Intercolonial. The last of the order for 5 locomotives, placed in April, 1899, has been delivered. Of an order for 200 box cars, placed some time since, 80 have been delivered. Rhodes, Curry & Co., Amherst, N.S., have delivered 170 box cars out of an order for 280, & 103 platform cars out of an order for 200.

The diminution in the supply of lumber occasioned by the recent Hull-Ottawa-fire, interfered considerably with the work at the Canada Atlantic car shops, where operations were temporarily suspended. The employees, however, were not thrown out of work, but have since been engaged in equipping cars with air brakes & patent draw-bars. About 2,000 cars have to be thus equipped, & considerable time will be necessary to do the work. By the time it is completed, other operations will be resumed in the shops.

The White Pass & Yukon is having 4 locomotives built at the Baldwin Locomotive Works. Following are the general dimensions:—One of the consolidation type with cylinders 17" x 20", driving wheels 38", outside diameter, & weighing in working order about 100,000 lbs.; two 10-wheelers, with cylinders 17" x 20", driving wheels 42", outside diameter, & weighing about 87,000 lbs., & one 10-wheeler, with cylinders 17" x 22", driving wheels 44", outside diameter, & weighing about 96,000 lbs. In each case the tenders are of 3,000 gall. capacity.

In our last issue we mentioned that equipment for the Great Northern of Canada was being bought by Col. Jas. McNaught, of New York City, who has been elected 2nd Vice-President of the Co. It is now announced that the Great Northern Equipment Co., of New York City, has been incorporated in West Virginia, with a capital stock of \$200,000, to deal in railway equipment. The incorporators are, J. C. McNaught, A. F. Clark, F. E. Ling, L. V. Ripper, & R. H. McNaught,

all of New York City. It is said this Co. has been organized primarily to finance orders for motive power & rolling stock for the G.N.R.

All the C.P.R. shops are running full time on repairs & new equipment. The Montreal car shops have well under way 8 standard passenger cars, of the same design as the 2 recently placed on the Montreal-Detroit run,

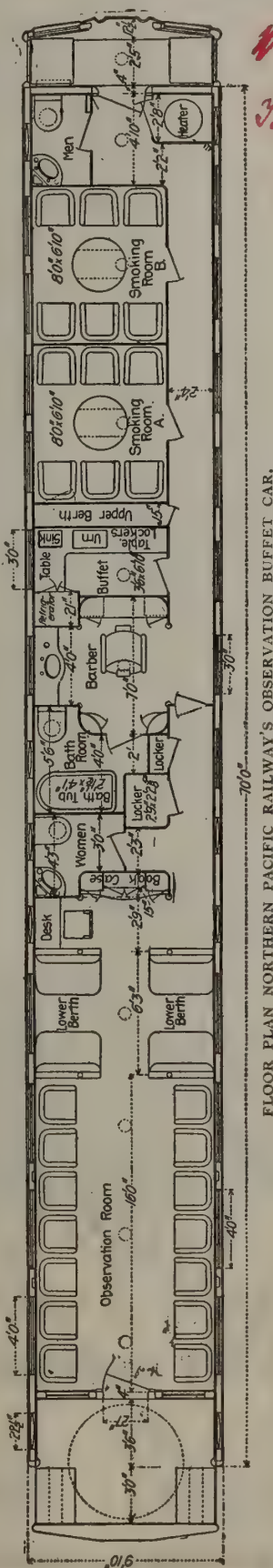
floor plan of which was given in our Feb. issue, pg. 45. These cars are 65 ft. long, 6-wheel trucks, high speed brakes, all finished in mahogany, both interior & exterior, & are considered the finest of their kind in the country. The Hochelaga shops have orders for ten 60 ft. express cars, & the Farnham shops have orders for 10 standard cabooses. The Perth shops are running overtime in the construction of 100 refrigerator cars, 400 box, & 200 flat cars, all of 60,000 lbs capacity.

There is now under construction at the Central Vermont shops an entire new observation train from an original design, to be put in service for the first time at the Yale-Harvard race on the Thames River, at New London, Conn., June 28. The entrance to the cars is in the centre of each car, passing up an aisle to the right & left of which are 4 rows of seats. The seats are all high back, with sufficient rise for the occupants of each seat to have a clear view over those in the seat below. A heavy plank floor between each seat gives a rest, and a dash-board at the back & bottom of each prevents injury to clothing. The arched roof of the cars is so supported that no obstruction exists to a clear view, both from the front & ends of the cars, while protection is given against showers. The train is handsomely painted & decorated with the crimson & blue college colors.

The Northern Pacific has had a number of observation buffet cars built for its North Coast Limited, which is now running daily between St. Paul & the Pacific Coast. By the floor plan given on this page it will be seen that each car contains an observation room, a sleeping section, 2 smoking rooms and a central portion containing the buffet, the barber shop & the bathroom. In addition there is the observation platform, the ceiling of which is in the shape of a large dome. This platform is enclosed with a polished brass railing. The chairs in the observation room are of wickerwork upholstered in plush. In the observation room there is a large oval centre table. The card tables in the smoking rooms have folding tops as indicated by the dotted lines. The car has a library & other accessories. All of the cars on these new trains are lighted by electricity, generated by a dynamo in the baggage car, & there are storage batteries for use in emergencies. The cars are finished in mahogany.

In the House of Commons recently, the Minister of Railways replied to an enquiry as follows:—"Sixteen cars were purchased from the Wagner Car Co., received on the road in May, 1899, & were of the following classes: 8 sleeping cars, 4 dining cars, 4 first-class cars. During the winter defects became apparent in some of the wheels. The cars have been taken into the shops & the wheels are being removed & replaced with new ones. The wheels which were supplied under the cars by the Wagner Co., & which failed, were made by Krupp, of Germany. The I.C.R. made a claim upon the Wagner Co., & it informed Krupp, who sent his agent to Moncton; after examination, Krupp assumed the responsibility & undertook to furnish new wheels without charge. Some Krupp wheels furnished the I.C.R. by the Crossen Co. & the Rhodes, Curry Co., under cars built by them about the same time, & some Krupp wheels bought direct from Krupp's Canadian agent about the same time, have also shown defects, so that it is probable a mistake has been made in the manufacture of a particular lot of steel, as the I.C.R. has used Krupp wheels & tires for many years & found them satisfactory."

A railway is to be constructed from Damascus to Mecca in order that pilgrims may be saved from a sea voyage. It is proposed that the line shall be built by soldiers.



The Privy Council and Oil Rates.

A summary of the decision of the Railway Committee of the Privy Council on the complaint against the railway rates on oil was given in our last issue. Following is the full text of the Order-in-Council:—

Extract from a report of the Committee of the Honorable the Privy Council, approved by His Excellency May 1, 1900.

"On a memorandum dated April 24, 1900, from the Minister of Railways & Canals, representing that under date of April 24, 1900, an order of the Railway Committee of the Privy Council recommends that the freight rates on oil as specified in the following schedule be submitted to your Excellency in Council for approval:

Miles.		In Car Loads.	
		Rate per ton per mile in cents.	Rate per 100 lbs in cts.
3	Port Huron to Sarnia.....	33.33	5
44	Suspension Bridge to Hamilton.....	4.77	10½
59	Detroit to Sarnia.....	3.59	10½
69	Black Rock to Hamilton.....	3.00	10½
89	Suspension Bridge to Toronto.....	2.36	12
108	Black Rock to Toronto.....	2.22	12
129	Petrolia to Hamilton.....	2.17	14
135	Sarnia to Hamilton.....	2.09	14
138	Port Huron to Hamilton.....	2.03	14
168	Petrolia to Toronto.....	2.02	17
169	Sarnia to Toronto.....	2.00	17
172	Port Huron to Toronto.....	1.92	17
186	Windsor to Hamilton.....	1.82	17
187	Detroit to Hamilton.....	1.81	17
225	Windsor to Toronto.....	1.60	18
226	Detroit to Toronto.....	1.59	18
415	Suspension Bridge to Montreal.....	1.10	23
440	Black Rock to Montreal.....	1.05	23
500	Petrolia to Montreal.....	1.00	25
501	Sarnia to Montreal.....	1.00	25
504	Port Huron to Montreal.....	.98	25
557	Windsor to Montreal.....	.93	26
558	Detroit to Montreal.....	.93	26

"The above mentioned rates are not to be exceeded to intermediate points, to which the rates are to be scaled proportionately to the basing rates given above, according to mileage as far as practicable, the shortest mileage of any one road to govern.

"The Committee, on the recommendation of the Minister of Railways & Canals, submits the same for your Excellency's approval accordingly."

As yet there is no indication of what action the railways intend taking. The matter concerns the G.T.R. more than any other line & it is not likely any decision will be arrived at

until after General Manager Hays returns from England.

Trade Paper Advertising.

Chas. Austin Bates says in Current Advertising:—

Nowadays the enterprising manufacturer cultivates his trade paper space & gets good crops.

He does not stop at printing his name & address together with the thrilling information that he makes certain lines of goods, but he goes ahead & tells what kind of hats he makes, why he makes them better than the other fellows, & what they cost.

He expects results & he gets them.

You can get results from your trade paper. There isn't the faintest shadow of a doubt about that.

There must be some reasons why you are in business.

There must be some points of superiority about your product.

If there weren't you wouldn't have any customers.

Now, it is perfectly evident that if the points about you, your product & your methods, are capable of holding your present customers they are strong enough to get the trade of people who are not your customers if they are properly placed before them.

Your trade paper space is one of the best ways in the world to place these points before the people whose custom you want.

But you must not expect to get new trade unless you get right down to the root of things & tell your story as it should be told.

Your trade paper cannot get business for you. You have to attend to that part yourself.

All it can do is to place before its readers the advertisements which you turn over to it.

If the advertisements are not good you must not expect results.

If you hired a farm & after signing the lease & paying the rent sat back & expected crops without doing anything more, you would score a very complete & comprehensive failure.

It is the same way with trade paper space.

If you hire the space & let it lie idle you can't expect to reap any benefit.

If you cultivate it properly—if you sow the right kind of seed & see that it receives the right kind of attention—you will get a satisfactory & profitable crop.

Do not make the mistake of doing just the things your competitors do & following along in their tracks. Do something different. Get out of the rut.

Try to make your advertising individual. Try to have it reflect your points of superiority & try to make your advertisements stand out above their surroundings.

Put the story of your goods before the public in a straightforward, simple, frank manner & study out methods of display which will make your advertisements the first things seen upon the pages where they appear.

It may cost you quite a little to have prepared for you advertisements which will be what they ought to be.

The money will be judiciously expended.

When you come to think of it, it makes no difference what an advertisement costs. Results count not the cost.

If space that costs you \$10 can be made ten times as effective by spending \$20 or \$30 in properly filling it, it is plain to be seen that the investment is a wise one.

There are too many people doing good advertising nowadays for the comfort of the man who does poor advertising.

The Chignecto Marine Railway.

This is a subject that persists in bobbing up at every session of the Dominion Parliament. The intention of this scheme was the making of a short cut overland by means or which ships might be transported from the north-western end of the Bay of Fundy to the waters of the Gulf of St. Lawrence. The expenditure so far on this project has been enormous, estimated at over \$3,000,000, & the work has had the endorsement of leading engineers & the financial support of a number of British capitalists, who have not had any return for their expenditure. Some time ago, the Dominion Government refused to grant any further extension of time or to renew the charter of the company. This action, of course, has led to much protest among those who are interested, but whether the result of this further agitation will be of any practical benefit remains to be seen. Many of the best authorities who have examined the proposition from engineering & commercial standpoints, are of opinion that the ship railway is a practical proposition, only needing the necessary capital & assistance to make it a commercial success of inestimable value to the trade of Canada. Others equally authori-

THE FAIRBANKS COMPANY.

Pipes, Valves and Fittings.

We are Sole Agents for

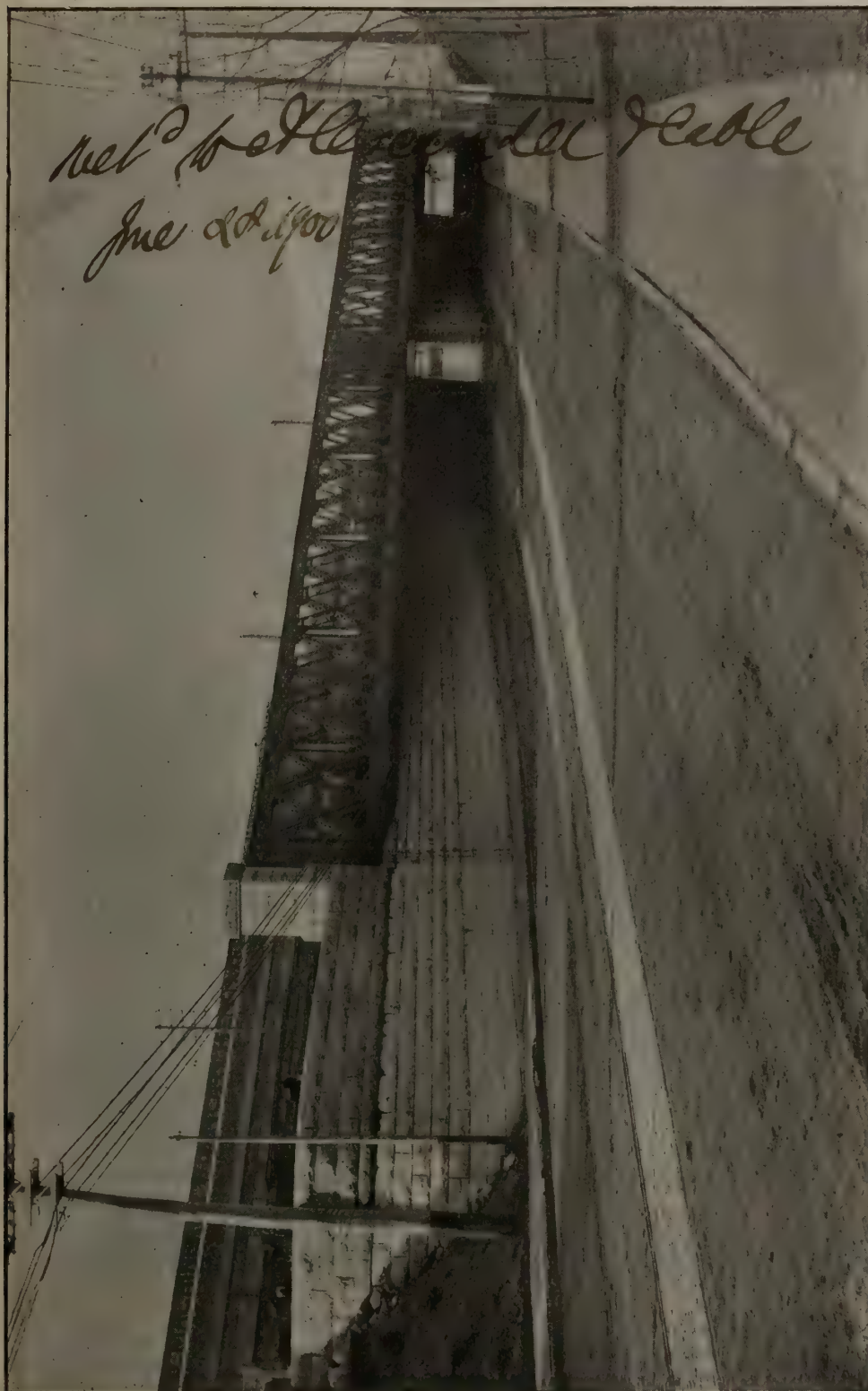
The Dart Patent Union Coupling.

PIPES, TOOLS, AND ENGINEERS' SUPPLIES.

749 Craig Street, = MONTREAL.



cut ref June 26. 1900



KING STREET SUBWAY, TORONTO, LOOKING WEST.

Engineering Records in the Railway Operating Department.

By C. E. Cartwright, M. Can. Soc.
C. E.

The following paper was read before the Canadian Society of Civil Engineers recently :

When, on completion of construction, a railway is turned over to the operating department, it is generally found that the maps, profiles & other records are far less complete than generally supposed. Even with very careful location, the unevenness of the ground, obstructions from trees & changes made during construction, introduce inaccuracies in distance, breaks in chainage caused by changes of alignment, increase or decrease length of line, & are difficult to keep account of. The profiles also have been made with differing datum & changes of grade made at the last moment are often unrecorded. Sidetracks, buildings, water tanks, &c., are seldom definitely located until construction is nearly complete, & not generally until after the general construction work is finished. Altogether, even at the best, the plans & records are more or less deficient.

Sometimes, also, a railway company acquires an old line from another company, or several short lines are amalgamated; in these cases it is often found that the records are almost altogether lacking, or are in a very incomplete & unreliable condition. Often the engineer in charge will find that he will have to get along the best way he can with the information available, making special surveys as the necessity arises; these surveys will be made in a hurry for some special purpose, & will be of little or uncertain value for other uses. Surveys of this kind accumulate, made by different parties for different purposes, with varying degrees of accuracy, & after a time it is seldom known how much reliance can be placed in them; in consequence it is often necessary to revisit the ground & make new surveys; a great amount of work has to be done, which would have been unnecessary if reliable plans existed. The remedy for this state of affairs is a complete re-survey of the whole road, especially when it is an important road in a thickly settled country, with towns & villages at short intervals.

On a railway in the Central States, with which the writer was employed, it was decided to make a complete re-survey, the line having been recently acquired from another company; the few existing plans were incomplete & disconnected, a great amount of uncertainty existed as to the company's title to right of way & other property, & it was also proposed

to expend a considerable sum in improving alignment & grades, accurate plans & profiles being needed for this purpose.

The railway was first carefully measured from end to end, starting with zero at one terminus; a 100 ft. steel tape was used; each hundred-foot station was marked with white paint on the inside of the rail; every tenth station was referenced by an oak stake, 3 ins. square, set $7\frac{1}{2}$ ft. from the centre line; stakes were also set at every mile, to be afterwards replaced by standard mile posts. After the measurement was completed, the line was gone over by the transit party. This party made a traverse of the line, not stopping to run tangents to intersection & put in curves, simply

tive have said that in place of a railway to carry ships & their cargoes bodily from one bay to the other, a canal would be far cheaper & more profitable in every way than the railway project. It has been pointed out that a river already parallels the railway, & it would only require deepening to enable it to offer a splendid waterway across the Isthmus of Chignecto. It is claimed that a railway constructed on the lines laid down by the old company, whilst practical, from an engineer's point of view, could not be operated cheaply enough to make it necessary for vessels to employ its aid, whereas a canal would be a natural pathway, inexpensive to maintain & of immense value in the development of interpro-

vincial trade. It seems certain that in time some proposition of the latter description will make its way by the process of natural selection & as the result of conditions which are now felt strongly by the coastwise trade of the Maritime Provinces.—Maritime Merchant.

On the new branch of the Northern Pacific up the Clearwater valley the water tanks will be of the submerged type. These tanks are the invention of Chief Engineer McHenry. Water is taken into the tender by admitting steam into a closed well, through a temporary connection with the locomotive, which forces the water out of the well through another pipe.

getting a record of the centre line of the track, as they found it on the ground. On tangents, a sight would be taken on the track ahead as far as visible, & a straight line run, any deflection in the track being noted.

The intersection of all township, section, quarter-section & property lines were obtained, the angles recorded, & distances measured to the nearest section or quarter-section corners, one member of the party being employed most of his time in looking up monuments.

Plusses to points of intersection were obtained from the stations marked on rails by the measuring party.

A record was made of the fences on each side of the right of way, & distance from the centre line, this being often important as a means of determining a disputed boundary, where the fence had been in existence for a long period, as many deeds did not state the width of the right of way.

In villages & towns, the streets & lots adjacent to the company's property were located; all important factories, with the tracks leading to them, even if on a foreign railway, & all sidings & structures on the company's property, particular attention being given to apparent encroachments, it being often found that buildings were wholly or partially on the company's property without any lease having been made. In making a survey through a village or town, the transit party was furnished with copies of the official plates, previously obtained at the county seat, to aid them in locating lines & streets.

The transit party measured all bridges, buildings, culverts & other structures, located all "Y" & railroad crossings, & public & private road crossings.

The level party followed, taking levels at every hundred-foot station, on top of tie, at ends of bridges, on railway crossings, of level of water in streams, & approximate levels of adjacent ground. Check levels were run & bench marks established at about half mile intervals, & oftener at places likely to be needed. Levels were connected with sea levels taken from U. S. Government surveys.

The plans were drawn on white drawing paper in sheets, on a scale of 400 ft. to an inch, each sheet showing the line across a square mile section of land, a whole section or two adjoining half-sections being shown on the sheet. The top of sheet was north in every case, all distance & angles obtained on the ground to section & property lines were recorded on the sheets. On top of each

sheet was a plain title giving number of section, township & range.

All deeds & agreements were carefully gone over & compared with the plans, right of way colored in red, with name of grantor, page & number of record book, & any conditions in deeds noted on plans. Villages & towns, where the scale of 400 ft. to an inch did not allow sufficient detail to be shown, were drawn also on a scale of 100 ft. to an inch, a large town often requiring several sheets, the same ground being covered, with less detail, on the smaller scale.

The sheets, when completed, were numbered & bound together by counties, the first page being devoted to title & the second to an index map of the county, showing the route of the railway. The centre line was drawn in red ink, all station numbers & plusses being also in red; distances & all lettering were shown in black. Before binding, all the plans were copied on tracing linen. The profiles were drawn on the usual scales of 400 ft. to an inch horizontal, & 30 ft. to an inch vertical.

In cases where the engineer is unable to have a complete re-survey made, it will be advisable, as time permits, to make accurate surveys of all yards & station grounds, depending for general details of alignment outside these limits on the existing right of way maps. If an accurate set of yard & station ground plans are obtained to start with, it will be a comparatively easy matter to keep them correct as changes are made.

A statement should be prepared, giving length of all sidings, spurs & "Y's," made from actual measurements, & not from foremen's reports. The form can be made with several blank columns to be filled in from time to time, with "Track laid during —," "Track taken up during —," "Total length on —." This statement will show at a glance length of track on any siding, & avoid a search on plans & profiles for the information.

A chart, showing graphically the different makes, weights & date when laid, of the rails in use, should be made, & corrected as new rails are laid.

A bridge book should be kept, devoting a page to each bridge or trestle, giving style, spans, size of stringers, when built, when repaired or rebuilt, conditions when inspected, etc.

A record should be kept of all leases of the company's property, a copy of lease & plat filed.

Detailed statements should be kept of the actual cost of all structures built, & on completion, plans made showing the structure actually as built, showing depth & character of foundations of bridges, retaining walls, etc., & all differences from the original designs. A condensed plan & profile may be prepared when time permits, showing a great amount of general information, useful in the track & operating departments. The scale will depend somewhat on the length of line it is desired to represent, but, even on a scale as small as one mile to an inch horizontal, & 100 ft. to an inch vertical, the principal grades, sections, mileage, water tanks, sidings, railway crossings, etc., can be shown.

The plan will probably have to be somewhat distorted in order to keep it on same paper as the profile, & lengths of sidings & size of structures exaggerated. The arrangement can be somewhat as follows:—

On top a series of lines showing number of telegraph wires; lines showing the fencing, the mileage & the track sections; below this, a plan or graphical chart of the line, showing general geography & alignment, degree of each curve being shown by figures. Then the profile, showing bridges, grades, stations, etc.; below the profile a series of lines showing rails, joints, ballast, & new rails, new joints, new ballast.

An important matter is a system of filing plans so they can be quickly found when needed. When blue prints are much used, it is best to file the tracings. When plans are numerous a card index will be found most convenient. A plan can be indexed on the cards under several headings, & new plans can be added & changes made without spoiling the index.

The tracings can be filed in small pigeon holes, designated by letters & numbers, at sides & top of case respectively. The objection to this method is that the tracings, being tightly rolled, are troublesome to get flat in the blue print frame; this can be avoided by filing them flat in drawers & indexing by letters & numbers in a similar manner.

The C.P.R. hotel at Banff was re-opened for the summer May 17.

It is said traffic arrangements have been made between the C.P.R. & the Bellingham Bay & B.C. Ry., under which the C.P.R. obtains a terminal at New Whatcom, Wash. Connection is made via the C.P.R. Mission Branch from Mission Jct., B.C.

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We have much pleasure in announcing that we have opened a branch office of THE RAILWAY & SHIPPING WORLD at No. 44 Fleet Street, London, E.C., England, in charge of Mr. W. H. Boffey, who will represent us for the United Kingdom & for the European Continent, & who will make contracts for advertising in this paper, receive subscriptions, &c.

The transportation & allied companies whose interests are represented by this paper, buy largely many classes of goods in Europe, & especially in view of the fact that the Canadian customs duty on goods of British manufacture will, after July 1, be still further reduced to two-thirds of the duty levied on goods from other countries, we consider this an opportune time to place this paper prominently before British manufacturers, &c.

CURRENT TOPICS.

From Whiskey to Water.

The vagaries of government control of public works are well illustrated by the recent appointment of W. O'Brien, a Montreal restaurateur, to the Superintendency of the Lachine Canal, at a salary of \$2,500 a year.

Halifax Ocean Passenger Travel.

The C.P.R. secures a marvellous proportion of the ocean-borne passenger business from Halifax. The Deputy Minister of Railways gives figures in his recent annual report showing that in the winter season of 1897 & 1898, 6,188 passengers were landed at Halifax, of which the C.P.R. carried 5,364 via St. John, 622 going via the I.C.R. & the G.T.R. In the winter of 1898-99 the arrivals were 7,641, of which the C.P.R. carried 7,180 via St. John, 461 going by the I.C.R. to Montreal. All of which speaks volumes for the enterprise of the C.P.R. Passenger Department.

Rainy River Navigation.

The shipping interests on the Lake of the Woods are much handicapped by the delay in improving the navigation of the Rainy River. A vote of \$25,000 was provided by the Dominion Parliament last year, but was not used, & is again repeated in the estimates for the ensuing fiscal year. The upper stretch of the river is in bad shape & until it is improved it is of no use building large steamers to run from Rat Portage, as there is no certainty of sufficient water above the Sault Rapids for anything but small steamers. The acting Minister of Public Works should have the improvements started without delay & a further vote should be taken sufficient to complete the work.

Red River Navigation.

There appears to be a serious hitch in regard to going on with the building of a dam & lock at St. Andrews rapids, between Winnipeg & Selkirk, which the people of Winnipeg have been strongly urging for many years. Two or three months ago it was announced that a contract for the masonry had been let. The contract has not been signed & there are no indications that it will be. It appears that after tenders were called for the Government introduced legislation respecting the rate of wages to be paid on public works, a contingency which was not taken into account in tendering. A simple solution of the difficulty would appear to be to ask new tenders & not to delay a work for which there is a very strong demand.

Railway Operating Rules.

The remarks we have made from time to time, recently, about the efficiency of the standard code of train rules as framed by the

American Railway Association are emphasized by the fact just announced that the membership of the Association is 233 roads, operating 184,215 miles of line. Surely the Train Rules Committee of such an association must be superior to any commission of so-called experts such as the Dominion Minister of Railways has asked Parliament to empower him to appoint to frame operating rules which may be made obligatory on all Canadian railways.

At the recent meeting of the Association in Chicago, the C.P.R., was re-elected a member of the Committee on Train Rules. The Co. is represented in this connection by Manager Tait of its eastern lines.

Grand Trunk Capital.

In speaking at the banquet tendered him recently by the Montreal Board of Trade, G. B. Reeve made two mistakes in referring to the early financial history of the G.T.R. He said the line was built by foreign capital, not by subsidies from the Dominion Government. Unless we are very much mistaken, the private capital put into the G.T.R. was almost entirely British, which is certainly not "foreign" in any sense of the word. The Co. may not have received any direct subsidies from Dominion or Provincial Governments, but it did get a loan of \$15,142,633.34 before Confederation, & which still appears in the Dominion Public Accounts, no portion of the principal or interest having been paid. As by the terms of an act passed in 1884, the Dominion's claim in regard to this loan was made to rank after the common Stock & Securities of the Co., the loan may now fairly be put down as a subsidy.

Delinquent Railway Officials.

The following paragraph occurs in the recent annual report of the Chief Engineer of Government Railways:—"Great difficulty has been experienced, year by year, in getting out the annual report of the Department, owing to many of the railway companies failing to make the returns required by law and taking no notice whatever of the communications addressed to them from time to time, urging them to forward their returns. I suggest that in future legal proceedings be taken to compel the delinquent railway companies to comply with the law; the costs of the suits to be collected from them." Similar paragraphs have appeared in previous reports & there is no doubt the law should be strictly enforced. It is in the public interest generally that the returns referred to should be made promptly as required by the statute & officials who are too careless or too lazy to comply should be compelled to mend their ways.

Recognition of Services.

The services rendered to the public by transportation officials are so seldom publicly recognized that it is a pleasure to read the Quebec press reports of the demonstration which recently took place at Chicoutimi in honor of J. G. Scott, the Manager & Secretary of the Quebec & Lake St. John Ry. Some 3,000 people were present from all parts of the district traversed by the line. Addresses were presented from the town of Chicoutimi & from the colonists of the Lake St. John district, as well as from several societies, &c., eulogizing the important work done for the district by Mr. Scott, to which he felicitously replied, making the following announcement in the course of his speech:—"The capitalists in London who furnished so large a share of the money to build the railway are ready to put in more money to improve it, to make it a better & more workable road, & to give it a larger equipment of rolling stock, so that we may give you a better train service. Unless we are disappointed we shall, within a few months, have the large sum of £170,000 sterling at our disposal for these

purposes. I think it is now no secret that the New York & Boston capitalists who have been associated with us in the Great Northern enterprise, are ready, if the conditions are favorable, to spend even a larger sum of money in industries near Chicoutimi, which will go far to make this town one of the most prosperous in Canada."

British Columbia's Danger.

The position we have taken as to the danger to British Columbia's best interests, which is threatened by the existing political situation there, is being very generally endorsed, even by leading Liberal papers. The Montreal Witness says:—"Mr. Martin's policy is, of course, a demagogue one, appealing to the Provincial prejudices of the people of British Columbia as against the Dominion & Imperial interests, to the interests of the miners as against the mine-owners, & to the prejudices of the Europeans against the Asiatics. His policy includes Government ownership of railways, which is perhaps a good, but is as yet an impracticable measure; construction of a new railway from the coast to Kootenay mining districts, a policy intended to catch the electors of Kootenay district & the coast; exclusion of all Mongolian labor, which is in contravention of British treaties, & cannot, therefore, be enacted; resistance to encroachment on the Provincial rights of British Columbia by the Dominion Government, a declaration of war against the Imperial & Dominion Governments for keeping British Columbia legislation against the Japanese within the limits of the treaty obligations, & an eight-hour labor day to catch the mining vote. There can be no doubt that this policy is popular with the unthinking classes who are strong in numbers in B.C. And it is quite possible that with Mr. Martin as Premier serious trouble may be caused to all Canada by his rulership. It is one of the dangers of our system of appointing political partisans to governorships that now & then one of them occasionally, from political prejudices, uses the royal prerogative as the Queen herself or the Governor-General would not think of using it."

Suspension of Coasting Regulations.

The position we took some months since that the Dominion Government's action in suspending the coasting regulations so as to allow U.S. vessels to run between Fort William & Port Arthur & other ports in Canada, was clearly ultra vires & illegal, has recently received emphatic endorsement from an unexpected source. A memorandum has been made public, which was sent to the Privy Council on Oct. 16, 1899, by the Governor-General's Secretary, as follows: "His Excellency, having consulted Hon. David Mills, Minister of Justice, as to the legality of the minute (re the coasting trade), was informed that the order is distinctly a nullity, & that it assumes a power which it does not possess to cancel an Act of Parliament. On the other hand, the object of the order in question is distinctly to assist public interests. There have been frequent precedents of Governments taking action which was undoubtedly illegal when necessity was pressing & when the public good appeared to them to call for immediate action. The Government taking such action would, of course, rely upon the support of Parliament. The penalties in this case rest with the Government, & there would be, of course, no risk of any objection being taken to the course pursued as long as the present Government remains in power. But the statute lays down that penalties can be enforced within a period of three years, so that it is within the bounds of possibility that a succeeding Government, taking exception to the line now pursued, might claim to enforce a penalty. But considering there have been precedents for the action in question, & that public necessity undoubtedly at present calls for such action, it would appear to his

Excellency that he need have no hesitation in signing the Privy Council order in question."

But in the case in question "necessity was not pressing." It has been clearly established that there was plenty of Canadian tonnage to take out all the grain offering at Thunder Bay ports, & it has never been even contended that there was the slightest necessity for allowing U.S. vessels to take return cargoes from Georgian Bay ports to Thunder Bay, which under the illegal suspension they were allowed to do.

The Manitoba Railway Situation.

Another railway agitation has started in Manitoba. At the recent provincial elections the Conservatives, who were victorious, had a plank in their platform, favoring government ownership of railways, & a movement, with Brandon as the centre, is now on foot to secure the construction of some lines by the Province. At a recent meeting at Brandon, which is said to have been largely attended by delegates from municipalities extending north of the C.P.R. main line from east of Carberry to the western boundary of the Province, a resolution was unanimously adopted, calling on the Provincial Government to construct a line to serve the district between the M. & N.W. Ry. & the G.N.W.C. Ry., both of which lines have recently been acquired by the C.P.R., on the north, & the main line of the C.P.R. on the south, from Portage la Prairie to the northwest boundary of the Province. Another resolution was adopted, urging the Government to build lines northwesterly & southerly from Brandon & northwesterly from Portage la Prairie.

The peculiarity about the present agitation is that it follows so closely on the aid given to the section of the Canadian Northern Railway now under construction between Winnipeg & Rainy River, the first mortgage bonds of which on both the Manitoba & Minnesota sections have been guaranteed by the Province for 30 years to the extent of \$8,000 a mile. It might reasonably have been expected that the completion of this line through to Lake Superior would have been waited for, & its results ascertained, before looking for a third outlet, but the present movement does not stop at the building of local lines such as those above mentioned, but also aims at a Government line to Lake Superior, even Duluth being spoken of as an objective point.

Following the anti-disallowance agitation in the eighties, the Province bonused the Northern Pacific to extend its system to Winnipeg, Portage la Prairie & Brandon. Two or three years ago the Canadian Northern route from Winnipeg to Thunder Bay, passing south of

the Lake of the Woods, was started. If this is followed by the construction of a Government line to Lake Superior the Province will have made a pretty heavy investment to secure eastern outlets & it would appear that a good proportion of the money which this last proposal would cost could be used to good advantage by dealing with one of the existing companies & preventing unnecessary duplication of lines. The C.P.R. proposes to double track its line between Thunder Bay & Winnipeg & to improve its grades, &c., so as to be in a position to handle the traffic to the best possible advantage. Possibly, in return for assistance in this work, it might be prepared to give further reductions in grain rates, &c., which would satisfy those who are now so warmly advocating a Government line. Unnecessary duplication of lines should be avoided, or the disastrous results that followed the reckless policy pursued in the United States a few years ago will be repeated here.

Quebec Central Railway Report.

A brief summary of the annual report for 1899 is given on page 163. Since it was put in type the full report has been received by mail from London, Eng.

The following summary shows a comparison of the year's revenue account with that of the previous year:

1898.	1899.
\$450,249	Gross earnings.....\$502,409
303,908	Working expenses (including taxes).....334,238
\$146,341	Net earnings.....\$168,171
1,013	Interest on balances.. 974
\$147,354	Net revenue.....\$169,145 = £34,756.

The above statement shows increases in the gross earnings of \$52,160, in the working expenses of \$30,330, & in the net earnings of \$21,830.

After providing \$82,650 for the year's interest paid & accrued upon the prior lien bonds & debenture stock, there remains a net revenue balance for the year of \$86,495, which added to the \$12,203 brought forward from 1898, makes an available balance of \$98,698, out of which interest at the rate of 2½ % has been declared on the income bonds, payable May 1, 1900, absorbing \$74,022, & leaving a balance at the credit of net revenue account on Dec. 31, 1899, of \$24,676.

Appended to the report is a copy of an Act recently obtained from the Quebec Legislature to further amend the charter of the Co., & to remove some doubts which had arisen as to

the true intent of certain provisions of the Act submitted to and approved at the last annual meeting.

Up to Dec. 31, 1899, £200,600 of the new 4 % debenture stock had been issued. Of this £185,300 had been used in retiring a like amount of prior lien bonds, & £15,300 had been sold to provide funds for a portion of the requisite additional capital expenditure authorized by the Act of 1899. There remained £164,700 prior lien bonds unexchanged on Dec. 31, 1899. A proposal for the sub-division of the existing Income Bonds into two classes of security is being formulated by the directors, & will be laid before the bondholders.

EXPENDITURE.

1898.	1899.
\$ c.	\$ c.
54,549 23	Conducting transportation.....58,183 18
77,371 51	Maintenance & working of locomotives.....88,351 97
22,236 28	Maintenance of cars.....21,514 75
82,050 64	Maintenance of way.....93,342 58
30,188 48	General expenses.....33,259 61
37,511 86	Miscellaneous expenses.....39,586 03
\$303,908 00	*Total working expenses.....\$334,238 12
146,341 69	Balance to net revenue account.. 168,170 95
\$450,249 69	\$502,409 07
67.49.....	*Per cent. of gross earnings .....66.52

RECEIPTS.

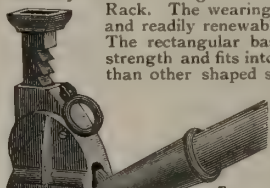
1898.	1899.
\$ c.	\$ c.
148,408 39	Passengers.....158,456 87
279,259 55	Freight.....323,397 11
13,446 48	Mails.....12,735 60
6,000 00	Express.....6,000 00
3,135 27	Miscellaneous.....1,815 49
\$450,249 69	\$502,409 07

Cattle Guards in Ontario.—A deputation comprised of J. Wrigley, Ayr; J. Wallace, Galt; L. Kennedy, Agincourt; J. Thomson, Sharbot Lake; Y. Sutherland, Embro; & J. Laidlaw, jun., Guelph, recently represented to the Minister of Railways that the new system of cattle guards was not sufficient to prevent cattle from getting upon the railway tracks, & in consequence a greater number of cattle were either injured or killed than was the case even under the old system of guards. The farmers wish this to be remedied, so that if cattle strayed away they should not be thus exposed to danger. They also claimed that even when cattle were accompanied by drivers there was an opportunity for their getting into the property of the railway companies & becoming exposed to danger by passing trains. The Minister promised that their representations would receive consideration. (Feb., pg. 34, Mar., pg. 79.)

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Golden Key Brand

AERATED WATERS.

C.P.R. Earnings & Expenses.

Gross earnings, working expenses, net profits and increases over 1899, from Jan. 1, 1900:

Earnings.	Expenses.	Net Profits.	Increase or Decrease.
Jan. \$1,520,971.32	\$1,460,501.71	\$691,569.61	\$74,035.75+
Feb. 1,954,087.59	1,331,355.34	622,732.25	23,030.77+
Mar. 2,294,786.97	1,495,685.73	799,101.24	29,794.33+
Apr. 2,491,194.47	1,464,126.85	1,027,067.62	106,764.13+

\$8,892,140.35 \$5,751,669.63 \$3,140,470.72 \$174,036.32+
+ Increase. - Decrease.

There was an error in the statement published in our last issue, the Mar. net earnings being given as an increase of \$67,272.19, instead of a decrease of \$29,794.33.

Approximate earnings for May, \$2,639,000, against \$2,375,000 in May, 1899; increase, \$264,000. Mileage increased to 7,130 miles.

Canadian Pacific Railway Land Sales.

Acres.		Amount.	
1900	1899	1900	1899
Jan. 31,486	14,718	\$ 100,857.85	\$ 46,411.35
Feb. 23,613	13,747	75,771.19	43,371.69
Mar. 31,183	24,045	97,777.79	75,460.76
April 58,457	36,626	181,775.78	116,835.84
May 66,057	26,584	214,851.09	88,928.98
	210,796		115,720
		\$671,033.70	\$371,008.62

Grand Trunk Earnings, Expenses, &c.

The following statement of earnings supplied from the Montreal office, includes the G.T. of Canada, & the Detroit, Grand Haven & Milwaukee Rys., the earnings of the Chicago & G.T., which is in the hands of receivers, being omitted:

1900	1899	Increase	Decrease
Jan. \$1,819,988	\$1,606,065	\$ 213,923	.....
Feb. 1,587,923	1,505,549	82,374	.....
Mar. 1,830,834	1,798,968	31,866	.....
April 1,813,714	1,637,867	175,847	.....
May 1,872,773	1,750,690	122,083	.....
\$ 8,925,232	\$ 8,299,139	\$ 626,093	.....

C.P.R. Betterments, Construction, Etc.

Ontario & Quebec Division.—Storage sidings are to be built at once at Guelph Jct. Houses for section men are to be erected at Embro & Crumlin, & alterations are to be made in the freight sheds & yards at Ayr.

Ottawa Union Station & Yards.—Excavation work was commenced May 15 for the erection of freight sheds to replace those recently burned. They will be on stone foundations, & made as fireproof as possible. The largest building will be 300x40 ft., & the second one 250x50 ft. Both will be finished with flat gravel roofs. The contract for the masonry has been let to T. Tomkins, of Brockville, & the frame work will be done by the Company. An outlay of \$25,000 will be made on the sheds. It is said the station will be built after the style of the Place Viger Station in Montreal. It will be a handsome structure, facing on Broad st., & about 600 ft. north of the burned buildings. It will be 289 ft. in length, & stone is to be used entirely in the construction. On the second floor the divisional offices will be situated. The cost is estimated at \$35,000. The train shed is to be between 645 & 800 ft. in length. Ten tracks will run into it, giving ample accommodation for the passenger traffic. Plans have been drawn for the enlargement & re-arrangement of the yards. The land recently acquired consists of about 10 acres between the aqueduct & Richmond road & the river front. On it 20 tracks will be laid, giving greater facility for the marshaling & storage of trains. On the completion of this work the passenger & freight yards will be entirely separate. The passenger yard is to be fitted with 10 more tracks, giving provision for the making up & despatching of trains with a marked saving of time. There will also be ample accommo-

dation for the storage of passenger cars. A line will be built from the main line near the Mechanicsville crossing, connecting with the Prescott line. This will form a Y, & greatly facilitate the handling of trains entering & leaving the new station. (May, pg. 140.)

Ottawa Connecting Line.—It is said that in consequence of the heavy loss sustained by the Co. in the recent Hull-Ottawa fire it is not likely that the project to build a line across the city to connect the Co.'s present union station, near Chaudiere Falls, with the centre station near the canal basin, will be gone on with this year. (April, pg. 110.)

Northwestern Branch.—The M. & N. W. Ry., recently leased by the C.P.R. Co., & now known under this name, will have considerable work done on it this year. We are advised that the betterments will include about 25 miles of ballasting, 250,000 yds. of bridge filling, 20 miles of fencing, & 10 miles of ditching. A large amount of work will also be done widening banks & cuts & improving the grades.

Rat Portage.—Good progress is being made in enlarging the yard, taking out curves & reducing grades. The 12 tracks in the main yard will have a capacity of 400 cars. The roadmasters, trainmaster, yardmaster, dispatcher, operators & car checkers will have their offices in the old station building, now removed to opposite the new shops. (Feb., pg. 39.)

Lac du Bonnet Branch.—On May 30, we were informed that the grading of the first 10 miles was nearly completed & that work was being pushed on the remaining 13 miles to the lake. Track had been laid on the first 3½ miles from Molson & it was expected to reach the 10th mile shortly thereafter. The track will probably be completed to Lac du Bonnet in about 3 months. (April, pg. 110.)

The Acton Burrows Co.'s enameled iron plates are to be used for station names on this branch, instead of painted wooden signs.

Snowflake Branch.—The residents of the Mowbray district, township 1, range 8 west of the 1st principal meridian, are endeavoring to secure the extension of this branch from its terminus at Snowflake. (Jan., pg. 7.)

West Selkirk Branch.—Nothing definite has yet been decided upon in regard to the extension of this branch to the west shore of Lake Winnipeg, for which a survey was made recently. It is hardly probable that an extension will be built this year. (April, pg. 110.)

Winnipeg Terminals, Etc.—Work on the station & hotel buildings is not likely to start until arrangements satisfactory to the Co. have been made with the City Council. The Council's proposal is as follows:—The Co. to waive by agreement all questions as to its liability for taxes (municipal & school or hotel building & real estate). To pay school & business taxes on the hotel & its up-town telegraph office. To pay local improvement frontage taxes. To build sub-way under Main St., & settle all claims for damages from frontage owners. To raise tracks at least 1 ft. To keep sub-way clear from all surface drainage. Plans, specifications & consideration of subway to be subject to the approval of the Council. In consideration of the foregoing, & upon the Co. agreeing in respect of the hotel from the time of its construction to pay school, frontage & business taxes, the city will agree to exempt the hotel building & the real estate on which it will be situated from the ordinary municipal rate for 15 years, the city to apply for the necessary provincial legislation, giving effect to a by-law for the purpose. The Council estimates that 15 years' exemption from taxation would amount to about \$30,000, which is considered to be about half the probable cost of a sub-way. (April, pg. 110.)

Banff Springs.—J. De Woy, a U.S. landscape gardener, has been employed to superintend the extension & improvements of the grounds surrounding the Banff Springs Hotel.

Arrowhead & Kootenay Lake Branch.—An unconfirmed press report says that work has been resumed on the southern end of this line between Lardo & Trout Lake. (May, pg. 143.)

Columbia & Western Ry.—Of the extension from West Robson to Midway, the first 89 miles between West Robson & Greenwood is in the hands of the operating department. On the spur lines track has been laid & ballasted from Greenwood to Mother Lode mine, 5 miles, and turned over to the operating department. Track is also laid into Phoenix, thus reaching the following mines:—B.C., Brandon & Golden Crown, Winnipeg, Ironsides, Knobbill, Brooklyn & Stenwinder. This track will soon be ballasted & turned over to the operating department, when the line from Greenwood to Midway, 9 miles, will be ballasted. Trains are running through the long Bull Dog tunnel. About 500 ft. at one end of the tunnel was on a 10° curve, but the instrument work & chaining was so accurate that the transit lines from either end met within 1/16 of an inch. The levels came out with no appreciable difference. (April, pg. 111.)

Pacific Division.—A station will be built at once at Sandon, B.C., to replace the building recently destroyed by fire. A press report, stating that the stations at Revelstoke & Kamloops are to be replaced this year by improved structures, is incorrect.

It is expected that when the last of the Co.'s branch lines is completed in B.C. there will be no more ore shipped to the U.S. This was the prime object of the Co. in seeking power from the shareholders to spend money freely in the province, at once to occupy the whole field, & to give facilities to the miners, who had been loudly complaining that they had been neglected.

Vancouver & Lulu Island Ry.—Contracts for grading are reported to have been awarded to McDonald & Morrison & McQuarrie & Co., & work is reported to have commenced. (May, pg. 143.)

Great Northwest Central Ry.—At the annual meeting at the Union Station, Toronto, June 5, the following directors were elected: T. G. Shaughnessy, R. B. Angus, D. McNicoll, I. G. Ogden, T. Tait, W. S. Taylor, G. M. Bosworth.

Canada Atlantic Grain Shipments.—The following paragraph appeared in the Montreal Herald recently, headed: "Scarcity of Canal Boats":—"It is reported that the Canada Atlantic Ry. is experiencing great difficulty in procuring boats to handle the grain at Coteau Jct., that as a consequence it will bring down less grain from Parry Sound than was originally contemplated, & that fewer men will be required in its workshops to provide cars. About 20% of the men employed at the workshops are affected by the transportation difficulty."

The writer of the paragraph quoted evidently got mixed up in the matter. We are officially informed that the Canada Atlantic has no shortage of canal boats, in fact it has in its service enough to do twice the business that it has done to Montreal. There is, however, a shortage of ocean vessels coming to Montreal, which will probably curtail the output of that port this season. On the other hand, the Canada Atlantic has a larger fleet than ever, & could deliver more grain than it has ever delivered in Montreal, but owing to the shortage of ocean tonnage it will probably have to send a portion of its business to New England ports.

RAILWAY DEVELOPMENT.

Projected Lines, Surveys, Construction, Betterments, Etc.

Algoma Central.—Arthur White, Division Freight Agent of the G.T.R. at Toronto, who recently visited the Algoma district, said in an interview on his return: The Algoma Central has already constructed & in operation a division of its system running from Michipicoton Harbor to the Helen mines, where it taps a mountain of the purest hematite brown ore, calculated to contain many million tons. This ore is being mined for smelting at Sault Ste. Marie, Midland, Hamilton, Deseronto, & also at Collingwood when smelters are put up at the latter point. Another branch of the A.C.R. is being constructed from a point near Sudbury, tapping the nickel belt of the district with a view of supplying the nickel ore via the C.P.R. to the smelting works & rolling mills at the Sault & to the smelting works on the G.T.R. from Little Current by water to the ports of Midland & Collingwood. The main line of the A.C.R. is under construction & 25 miles of it will be completed by July 1, & an additional 100 before the opening of navigation next year. This line traverses through one of the best portions of New Ontario, & there are already being erected on its right of way large lumber mills to saw both hard & pine lumber. It will bring to the pulp & paper mills at Sault Ste. Marie the almost unlimited supply of pulpwood in the vicinity, & also bring down for reduction purposes the nickel & other ores found in the vicinity of the country it passes through. These vast enterprises will undoubtedly quickly populate New Ontario. (May, pg. 143.)

B.C. Railways.—At a meeting at Clinton, B.C., May 14, Premier Martin said that if his

Government was sustained in the pending elections it would borrow \$20,000,000 in England with which to build railways to compete with the C.P.R.

British Columbia Southern.—An act assented to by the Governor-General, May 7, provides that this Co. may complete on or before Dec. 31, 1904, the western section of its railway, between the western terminus of its central section on the Lower Kootenay River & the Pacific coast, by the most convenient route to a favorable place for crossing the Fraser River to New Westminster, thence to Burrard Inlet, including a branch line to Nelson via Salmon River, & also a branch line from its main line at or near the forks of Michel Creek, by way of Michel Creek to Martin Creek, provided that as to so much thereof as is not completed on or before that date the powers of the Co. shall cease. The Crow's Nest Pass branch of the C.P.R. is part of the B.C. Southern line & built under the latter's charter.

The Canada Atlantic has recently applied to the Montreal Harbor Commissioners for a grant of the middle pier which is being erected in the west end of the harbor on which the Co. is willing to build a grain elevator with a capacity of 2,000,000 bush., also large warehouses. The elevator to be so constructed as to take in grain either from the river or from rail. Permission was also asked to construct belt carriers to distribute grain to vessels lying at other docks. General Manager Chamberlin told the Commissioners that the Co. was willing to expend about \$500,000 on the elevator. As it will probably be a year & a half before the middle pier is built, & as the Co. wants to have an elevator ready for next year's trade an effort is being made to select some other site. The site of the old Island Wharf on Commissioner St. is considered a

good one, but it is not likely to be available for some time as the cribs have not yet been laid.

A building has been erected near the roundhouse in Ottawa for the employees, comprising reading, smoking & dining rooms & baths.

The Co. is negotiating with the Ottawa city council in reference to building a subway under the tracks at the Elgin St. yard.

A large coal chute has been erected at Depot Harbor.

The Canada & Michigan Bridge & Tunnel Co.'s bill, assented to by the Governor-General May 7, extends the times limited for the commencement & completion of the Co.'s works for 5 & 7 years respectively from the passing of the bill.

The Canada Southern Bridge Co.'s bill, assented to by the Governor-General May 7, extends for 10 years from the passing of the bill the time within which the Co. may construct a railway bridge across the Detroit River from Amherstburg, Ont., towards Grosse Isle, Mich.

Canadian Northern.—Track has been laid on the Ontario & Rainy River section on the first 40 miles west of Stanley to Lake Shebandowan, & is still going on. On the second 40 miles, about 90% of the grading has been completed, & it is expected that track will be laid on that portion & on a further 20 miles this season, making a total distance of 100 miles from Stanley. (May, pg. 143.)

Plans have been prepared in Mackenzie, Mann & Co.'s Toronto office for the bridge to be built over the Rainy River near Beaver Falls, & have been submitted to the U.S. Secretary for War. The river at that point is 1,200 ft. wide, & the bridge will probably consist of 5 or 6 spans. Under the act of

C. P. R. LANDS.

The Canadian Pacific Railway lands consist of the odd-numbered sections along the Main Line and Branches, and in Northern Alberta and the Lake Dauphin District. The Railway Lands are for sale at the various agencies of the company in Manitoba and the North-West Territories at the following prices:

Lands in the Province of Manitoba average \$3 to \$6 an acre.

Lands in Assiniboia, east of the 3rd meridian, average \$3 to \$4 an acre.

Lands west of the 3rd meridian, including the Calgary District, generally \$3 per acre.

Lands in Northern Alberta and the Lake Dauphin District, \$3 per acre.

TERMS OF PAYMENT.

The aggregate amount of purchase money and interest is divided into ten instalments, as shown in the table below; the first to be paid at the time of purchase, the second two years from the date of purchase, the third in three years, and so on.

Interest on the outstanding purchase money is payable in one year, except in case of an actual settler who breaks up at least one-sixteenth of the land within that time. No rebate of interest is allowed on hay or grazing lands.

The following table shows the amount of the annual instalments on a quarter section of 160 acres at different prices under the new conditions:

160 acres at \$3.00 per acre, 1st instalment \$71.90, and nine equal instalments of \$60.
160 acres at \$3.50 per acre, 1st instalment \$83.90, and nine equal instalments of \$70.
160 acres at \$4.00 per acre, 1st instalment \$95.85, and nine equal instalments of \$80.
160 acres at \$4.50 per acre, 1st instalment \$107.85, and nine equal instalments of \$90.
160 acres at \$5.00 per acre, 1st instalment \$119.85, and nine equal instalments of \$100.
160 acres at \$5.50 per acre, 1st instalment \$131.80, and nine equal instalments of \$110.
160 acres at \$6.00 per acre, 1st instalment \$143.80, and nine equal instalments of \$120.

DISCOUNT FOR CASH. If land is paid for in full at time of purchase, a reduction from price will be allowed equal to ten per cent. of the amount paid in excess of the usual cash instalment.

Purchasers paying any instalment, or more, one full year before the date of maturity, will be allowed a discount on the amount of the instalment or instalments so paid at the rate of six per cent. per annum.

Interest at six per cent. will be charged on overdue instalments.

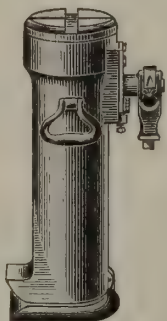
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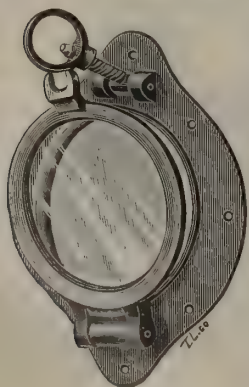
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Congress it will have to be provided with a draw or draws over the main channel, leaving a clear water space of not less than 160 ft. at one side of the pivot pier. It is expected to cost about \$300,000. (Feb., pg. 42.)

On the Manitoba & Southeastern section, regular train service is being operated between Winnipeg & Sprague. Ballasting is being done between Sprague & Warroad, Minn., & train service will be extended to Warroad as soon as this work is completed. Construction is being pushed from Warroad easterly to the Rainy River. (May, pg. 143.)

On the section from Gladstone Jct. to the Great Saskatchewan work is being pushed as rapidly as possible. It was intended to carry the line to the Saskatchewan this year, but the policy in this respect may be changed, & instead of doing this a start may be made on the line towards Prince Albert. (May, pg. 143.)

An Act respecting the Ontario & Rainy River Ry., assented to by the Governor-General May 7, extends the time for the completion of 80 miles, extending from the junction with the Port Arthur, Duluth & Western Ry. towards Rainy Lake until July 30, 1901.

Canso & Louisburg.—We are informed that the management expects to be pushing the work of construction from several points on the line by June 15. (Mar., pg. 72.)

Cape Nome & Port Clarence, Alaska.—A press despatch says there has arrived at Seattle, Wash., a consignment of steel rails & several narrow gauge locomotives & freight cars in knockdown shape, which are destined for a railway to be built this summer between Cape Nome & Port Clarence. It is stated that Port Clarence has such an excellent harbor that it will be extensively used by vessels bringing heavy cargoes of freight for all that section of country. The new road will derive its revenue from hauling this freight inland & to Nome.

The Edmonton, Alta., bridge over the North Saskatchewan, erected by the Dominion Government for railway & vehicular traffic, has been completed. (Dec., '99, pg. 351.)

Farnham to the Vermont Line.—Steps are being taken by local people to secure the building of a line from Farnham, Que., some 20 miles, through Stanbridge East & Freleighsburg, to the Vermont line. The Montreal & Province Ry. operated over a portion of this route some years ago. It is probable the Central Vermont has something to do with the scheme.

Grand Trunk.—A handsome portico is being erected in front of the Bonaventure Station, Montreal, the interior is being decorated, & a fountain is being placed among the flower beds & in front. Work has started preparing for the extension of the yards & sheds, a number of old buildings on Albert & adjoining streets having already been demolished. (Feb., pg. 38.)

Improved stations are to be erected this year at Queen St. East (Toronto) & Grimsby. They will be equipped with the Acton Burrows Co.'s enamelled iron station names. It is not intended to replace the present station at Harriston this year, as stated in a press report.

On the Chicago & G.T., W. Riley, formerly general roadmaster of the Chicago & Alton, has been appointed general foreman of construction. He will have charge of cutting down grades between Durand & Port Huron, Mich., with office at Davis Hill. The work of double-tracking & cutting down grades between Thornton Jct. & Valparaiso, Ind., will be in charge of P. H. Loftus, with headquarters at Valparaiso. Both pieces of work will be under the supervision of H. A. Woods, engineer in charge. (Dec., '99, pg. 348.)

Great Northern of Canada.—It is expected the extension of this line to Hawkesbury,

Ont., will be completed early in Aug. (April, pg. 112.)

Work is being pushed on the Co.'s 1,000,000 bush. grain elevator at Quebec. It will have a marine tower for lake craft, capable of discharging 12,000 bush. an hour, so as to unload lake vessels as well as cars. It will be equipped to load three ocean steamers of the largest tonnage, as the conveyors will lead to three different docks of 600, 600 & 650 ft. frontage, having a depth of water of 30 to 40 ft. It is claimed that these shipping facilities are superior to any in America. (Jan., pg. 8.)

Intercolonial.—The Minister of Railways announces that it is the intention to relay portions of the line with 80-lbs. rails, & 20,000 tons of steel rails will be ordered for the purpose. The rails to be replaced are 56 lbs. The relaying is to be carried out mainly on the Cape Breton line, traffic on which has been enormously increased by the establishment of smelting works at Sydney.

The wharves at Mulgrave, N.S., are being extended at a cost of some \$30,000.

It is said that instead of enlarging the station at Levis, an entirely new building will be put up on the river side of the track & that large wharves will be built.

The station at Sydney is to be remodelled & the yard is to be enlarged.

Interprovincial Bridge, Ottawa & Hull.—On May 28 we were officially informed as follows: Work is progressing very satisfactorily. The iron work is practically completed on two truss spans on the Quebec side of the river, also the south anchor arm of the cantilever with the exception of the wagon road bracketing at side of same, some of the riveting & diagonal bracing. Owing to high water, they were obliged to block this span on the piers, but are now letting it down & expect to get it into place in a couple of days. (This has since been done.) There has also been several hundred feet of trestle laid on the Hull side. We are pushing the south approach to completion, including work on a very heavy dry masonry retaining wall & an under crossing on the road for vehicular traffic in masonry & excavated out of the solid rock. We are also engaged in cutting through the abutment of Sappers' Bridge, a rather interesting piece of work, as it was built in 1837 when Col. By first reached Ottawa. The total thickness of the abutment is 24 ft., the outside walls in some places being only 2 ft. thick, apparently laid in water line, which is now about the consistency of sand. The filling between walls is composed of earth & some small broken stone. The stone is in fairly good condition with the exception of about 2 ins. on the outside, which the weather has had a chance to work at. (April, pg. 113.)

Inverness & Richmond.—Track was laid last year from Port Hastings to 2 miles beyond Port Hood, a distance of 30 miles. The grading of the second 30 miles to Broad Cove is about completed & track laying is expected to commence about July 1. The whole 60 miles is to be in operation this year. (April, pg. 113.)

Kootenay Ry. & Navigation Co.—This Co.'s Kaslo & Lardo-Duncan branch, on which grading was nearly completed last year from Argenta to Duncan City, B.C., is located to strike the Lardeau district on the south-east along the east side of the Lower Lardeau, following the east shore of Trout Lake to about a mile & a half from Trout Lake City, when it will branch off & head for Ferguson through an easy pass. At Ferguson the line will branch up both the north & south forks of the Upper Lardeau, so as to tap every mine in the district & open up the section thoroughly. (Feb., pg. 41.)

An Act respecting the Kaslo & Lardo-Duncan Ry., assented to by the Governor-General May 7, extends for 5 years from the passing of the Act the time within which the Co.

may complete the railway authorized by its Act of incorporation passed in 1897, viz., from Kaslo via Kootenay Lake to or near Lardo, thence to or near the southern end of Upper Kootenay Lake, thence along the shore of that lake to or near the mouth of Duncan River, thence along that river to its head water, with a branch from or near the mouth of the Lardo River via Trout Lake to or near Lardeau on Arrow Lake. Power is given the Co. to convey or lease its lines to the Kootenay Ry. & Navigation Co.

Lake Erie & Detroit River Ry.—The question of the route of the extension between Ridgeway & St. Thomas is still in abeyance from Dutton east. The people of Fingal, a small village with some 400 or 500 inhabitants, are agitating to get the line deviated so as to pass through that place. It is said that this deviation would mean an additional expense of \$100,000, which the Co. thinks would be of no benefit to any section of the country, as Fingal would in any event only be between $2\frac{1}{2}$ to 3 miles from the line, & the Co. does not consider it fair that it should be forced into spending practically all of the Dominion subsidy to benefit the village in question. If the deviation is insisted upon, it will require another large steel bridge of 1,000 ft., besides several smaller bridges & culverts. (May, pg. 144.)

About 4 miles of 75 lbs. steel rails are being laid between Blenheim & Ridgeway, replacing lighter rails, which are being taken up to be used in connection with the extension of sidings.

Manitoba Cement Co.—A bill before the Manitoba Legislature to incorporate S. Walker, W. Blackwood, W. Whyte, A. M. Nanton & J. A. M. Aikins, of Winnipeg, as a company under this name, provides that the proposed company may build & operate a railway & telegraph or telephone line from the Pembina Mountain branch of the C.P.R., at or near Morden, to or near the International Boundary Line in range 3, 4 or 5, west of the first meridian in Manitoba.

Montreal & Ottawa Ry.—An Act respecting this Co., assented to by the Governor-General, May 7, extends the time for the completion of the line for 4 years from the passing of the Act. This Co.'s line, already built from Vaudreuil to Ottawa, & from Rigaud to Point Fortune, is leased to the C.P.R. The line yet to be completed is from Point Fortune towards Hawkesbury.

Nipissing & James Bay.—A bill to extend for a further period of 2 years the date for the commencement of this line, the charter of which is controlled by Mackenzie, Mann & Co., was opposed before the Railway Committee of the House of Commons by counsel for the City of Toronto, but was carried by a vote of 70 to 7. It is said the portion from North Bay to Lake Temagaming will be proceeded with if a Dominion subsidy can be obtained.

At its last session the Ontario Legislature voted a cash subsidy of \$3,000 a mile for a railway from the town of Parry Sound to connect with the Canada Atlantic Ry., not exceeding 5 miles in length. No company was named as the recipient of the bonus, so that it can be given to the Nipissing & James Bay Ry., or to any other company. (Dec., pg. 352.)

Niagara Grand Island Bridge.—The Act respecting this Co., assented to by the Governor-General, May 7, extends the time limited for the commencement & completion of the work to 5 & 10 years respectively from the passing of the Act.

Northern Pacific.—No decision has been arrived at in regard to the rebuilding of the Manitoba Hotel at Winnipeg, & it is not probable that it will be done. (Apl., pg. 115.)

In a recent interview President Mellen said: "We have no intention to withdraw from

Manitoba. We will, however, build no extension or no new lines. We are on the friendliest terms with the Provincial Government, & the Dominion Government, which has given the C.P.R. the right to parallel all our lines in Manitoba. We do not wish to further arouse the ire of the C.P.R. by extending our lines, which are now a paying property, even though not an extremely profitable one."

A later press despatch credits Mr. Mellen with saying that the Co.'s Manitoba lines would be sold to the highest bidder. (Apl., pg. 115.)

Members of the Manitoba Government are said to have recently visited St. Paul, to confer with the Co.'s management as to these 3 propositions: The purchase of the N.P. Manitoba lines by the Government. The operation by the N.P. of all lines which the Government may build. The building by the N.P. of a new road direct to Lake Superior, with a guarantee of a rate of 10c. per 100 lbs. for wheat from Manitoba to Duluth.

Parry Sound to Canada Atlantic Ry.—See under head of Nipissing & James' Bay Ry.

Pontiac Pacific Jet.—The Act respecting this Co., assented to by the Governor-General, May 7, empowers the Co. to construct & operate a railway from its present line, in or near Shawville, Que., across the Ottawa River to or near Pembroke, Ont. So soon as the line is completed to Pembroke the Co. is to proceed with the construction of its line from its present terminus at Waltham, Que., 80 miles from Ottawa, to or near Ferguson's Point. (April, pg. 115.)

Port Dover, Brantford, Berlin & Goderich Ry.—The Act to incorporate this Co. was assented to by the Governor-General, May 7. The incorporators & provisional directors are J. Ellis, Port Dover; S. Snyder, Waterloo; C. H. Waterous, Brantford; J. S. Clark, Ayr; D. W. McNair, New York; W. H. Breithaupt, F. Colquhoun, Berlin; D. A. Bowlby, C. A. Austin, Simcoe. The capital is placed at \$4,000,000. The head office is located at Galt, the directors having power to change it. The Co. may construct & operate a standard gauge railway from Port Dover via Simcoe, Waterford, Brantford, to Berlin, & thence through the counties of Perth & Huron to Goderich, with branch

lines from Berlin to Elora, from Waterloo to Listowel, & from Berlin to Stratford. The Co. is given power to own & operate vessels, elevate grain, construct & operate telegraph & telephone lines, as well as other powers.

Prince Edward Island.—What is known as the shipyard & Mutch's Point site has been decided on for a bridge across the Hillsborough river at Charlottetown. Specifications have been prepared, & tenders are likely to be invited at an early date.

Work has started on the construction of the branch from Charlottetown towards Murray Harbor, the contract for the first 11½ miles of which has been given to J. W. McManus, of Memramcook, N.B. Reid McManus, C.E., is in charge. (May, pg. 144.)

Quebec Bridge.—It is said the contract for the superstructure is based on a sliding scale dependent on the market price of steel when the work shall be built. The bridge will require about 27,000 tons of steel. So far as the plans have been decided, the bridge will be 150 ft. above the river, & will be 67 ft. wide. The bridge proper & approaches will be nearly 3,300 ft. long. The middle span of the cantilever will be about 1,800 ft. The two end spans are each about 500 ft. long & 84 ft. deep at the ends. The middle span will be the longest of the kind in the world, exceeding that of the Forth bridge in Scotland by 100 ft. The bridge will carry 2 steam railway tracks, & 2 electric railway tracks, a roadway, & walks. It will require about 2 years to finish the foundations, the contract for which, as already noted, has been let to Wm. Davis & Son, Cardinal, Ont., & the steel work need not be begun for 18 months. (May, pg. 144.)

River St. Clair Ry. Bridge & Tunnel.—By an Act, assented to by the Governor-General, May 7, the statute of 1882, chap. 70, sec. 2, has been repealed, & this Co. is empowered to construct & operate a railway bridge across, or a tunnel under, the river St. Clair, from the township of Moore, Lambton County, to St. Clair, Mich. The times limited for the commencement & completion of the works are extended for 5 & 10 years respectively from the passing of the Act. H. B. Ledyard & F. W. Vanderbilt are appointed provisional directors, instead of J. Tillinghast & C. Vanderbilt, deceased.

The Rutland R.R. has abandoned the idea of building a bridge over Lake Champlain. It will use the Central Vermont bridge, which extends from Rouse's Point to Alburgh. (Jan., pg. 9.)

Shore Line.—A despatch from St. John, N.B., says, "Superintendent McPeake, of the Shore Line Ry., is authority for the statement that a company is endeavoring to purchase the railway, & if consent can be obtained from the Canadian & U.S. Governments, a bridge will be constructed across the St. Croix River at St. Stephen, thereby enabling the road to connect with the Washington County R.R. in Maine, & eventually to establish a through line to the West. Speaker Hill, of the N.B. Legislature, states that he is in favor of assisting the road financially to construct a bridge."

The South Shore Ry., from St. Lambert to Sorel, Que., 44.67 miles, was extended last year 10 miles further to Yamaska & it is said to be the intention to continue it to Point Levis, opposite Quebec. Particulars as to the financial arrangements are given under the head of "Railway Finance" on page 163. It is also said to be the intention of the Co. to build a branch eastward to Valleyfield. (Mar., pg. 74.)

Toronto, Lindsay & Pembroke.—At its recent session the Ontario Legislature voted a subsidy of \$3,000 for not exceeding 36 miles, for a line between a point 15 miles east of Bancroft to or near Golden Lake. The first 15 miles from Bancroft was subsidized previously. The line is to connect Bancroft, the terminus of the Irondale, Bancroft & Ottawa, with Golden Lake, the junction of the Canada Atlantic & Pembroke Southern lines. R. A. Campbell, M.P., T. Murray & A. Foster, Pembroke, are among those interested.

The Vancouver Northern & Yukon Ry. Co. will apply to the B.C. Legislature for an act extending the time within which it may complete its undertaking, to empower it to extend its proposed railway from or near Vancouver, or some other point on Burrard Inlet, to the north or south shore of the Fraser River near New Westminster, & to change its name to the Vancouver, Westminster Northern & Yukon Ry. Co.

White Pass & Yukon.—General Manager Hawkins was in Victoria, B.C., May 22, returning from a trip to White Horse, & ex-



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pressed himself as greatly pleased with the progress of the work on the extension of the railway & the mining & business prospects. The first 14 miles of the extension along the shore of Lake Bennett is very heavy rock work, & it will be Aug. 1 before trains can run over it. The section from Caribou to White Horse will be operated shortly after June 1, a ferry service being maintained between Bennett & Caribou until the section along the lake has been completed. The distance from Skagway to Bennett is 27 miles; from Bennett to Caribou is 27 miles; from Caribou to White Horse 44 miles, so that the railway will be close on 100 miles in length. Mr. Hawkins expressed himself as greatly pleased with the work done, & said that with the roadbed provided trains between Caribou & White Horse could travel 40 miles an hour. "Within 8 days after Lake Bennett opens so that we can get the barges carrying our steel into Caribou," he said, "the extension will be completed into White Horse. The two 600 ft. trestles are finished, & track laid to a point several miles beyond. We have steel there to complete the track to within 20 miles of White Horse, where tracklaying will stop until we can get our rails to the front. With the Heney barge, we have three barges in Bennett that we will send to Caribou with rails as soon as the lake opens. By Aug. 1, trains will be running through from Skagway to White Horse without change." The Co. has greatly increased its facilities for handling freight at both Bennett & Skagway, & can handle four times the amount it could last year.

Quebec Central Railway Meeting.

At the annual meeting in London, Eng., May 23, the annual report, which is given on pg. 172, was submitted. The President, E. Dent, said: You will see by the report that the gross earnings for 1899 amounted to \$502,409, as compared with \$450,249 for 1896, an increase of \$52,160. The working expenses were \$334,238, against \$303,908, an increase of \$30,330. The net earnings were, therefore, \$168,171, as compared with \$146,341 for the previous year, which shows an increase of \$21,830, to which must be added \$974 for interest on temporary investments, making a total net revenue of \$169,145. After providing \$82,650 for the year's interest paid & accrued on the prior lien bonds & debenture stock, there remained a net revenue balance of \$86,495, which, added to the \$12,203 brought forward from the year 1898, made an available balance of \$98,698, out of which interest at the rate of 2½% has been paid on the income bonds, leaving a balance of \$24,676 to be carried forward to the current year. The percentage of working expenses to gross earnings was 66.52, against 67.49. The improvement in the gross earnings is owing to increases in both passenger & freight traffic. The passenger earnings were \$158,460, against \$148,408, or an increase of \$10,052. Local travel was regular & good throughout the whole year. Business was prosperous, especially with the lumber & mining industries, & altogether the local passenger receipts increased by \$4,700. Foreign passenger traffic, consisting of through travel between the U.S. & the Quebec districts, also showed the satisfactory increase of \$5,352. The through drawing-room buffet-car service between Quebec & Portland was well patronized & found to be more appreciated than the night train service of previous years. The general tourist travel, of which the city of Quebec is the great attractive point, increases every year, & the Q.-C.R. gets its full share of the improvement. The average earnings per passenger were \$1.04, against \$1.06. This decrease is due to the fact that local passenger traffic increased more in proportion than the foreign, & so the general average was slightly reduced. The

total freight traffic carried was 309,900 tons, against 245,267, yielding additional gross earnings of \$44,137. The improvement in business which commenced about the middle of 1898 continued & increased throughout the year 1899. The asbestos mines at Thetford were worked to their full capacity, & mines at Black Lake which had not been worked for some years were reopened. The demand for lumber in the U.S. & the better prices, made our lumber shipments very extensive. The increase of pulpwood sent to the pulp & paper mills was also large, & the same may be said with regard to dairy products. In fact, business was generally prosperous, indicating that the section of the country served by the Q.C.R. shared fully in the general prosperity of the Dominion. The average earnings per ton of freight carried were \$1.04, against \$1.13—a small decrease. This was not, however, owing to a reduction in the freight rates, but because there was a larger increase in the low grades of freight, such as lumber & pulp wood, than in the higher grades, such as general merchandise, flour, grain & supplies, & as the low grade freight, particularly pulpwood, was carried shorter distances, & at considerably lower rates than the higher grade of traffic, the result was an average reduction of 9c. a ton. During the year the permanent way received the usual attention & necessary repairs, & was kept in good condition; 18 miles of old steel rails laid in 1877, weighing 56 lbs. to the yard, were replaced by new 70-lb. steel rails. Over 52,000 ties were replaced on the main line & Chaudiere Valley branch, in addition to over 6,000 for sidings. About 64,000 tons of ballast has been used on 30 miles of the road. The freight & passenger cars have been kept in good condition, & 2 1st-class new locomotives have been purchased. Annexed to the annual report will be found a copy of an Act recently obtained to further amend the charter of the Co. Some doubts having arisen as to the true intent of certain provisions of the Act 62 Vict., chapter 74, it was thought desirable to remove them. The new Act definitely fixes the number of directors to be appointed by the bondholders & shareholders, & also enables the directors to repay & redeem, at any time after the expiration of 20 years, from the date of issue, any new bonds or securities to be issued in exchange for the income bonds. The powers conferred by the Act of 1898 enabled the holders of prior lien bonds to exchange their securities for new 4% debenture stock, & up to the present this offer has been accepted by the holders of £195,500 out of a total issue of £350,000 bonds. The directors hope shortly to issue a circular to the holders of the income bonds setting forth a proposal for the subdivision of their bonds into two classes of security, & I might mention that the offer will probably be for each £100 of existing bonds to receive 50% of a new 3% debenture stock or bond & 50% new income bonds, which would be entitled to interest up to the rate of 7%, if earned in any one year, so that the combined interest on the new securities would be equivalent to the interest on the existing 5% income bonds. Referring now to the current year, the gross earnings up to the second week in May have been \$158,262, as compared with \$141,693, while the net earnings for the first 4 months have been \$37,493, against \$34,687. I have to report an unfortunate accident we have had. Last month, owing to a sudden exceptional flood, the iron bridge at St. Anselme over the Etchemin river was carried away by an accumulation of ice & logs. This bridge was built in 1866 to replace one that was carried away in April of that year. It was a single span bridge of about 120 ft. & 25 ft. above the water, & it was placed 8½ ft. higher than the highest water which had ever been known, so it was considered absolutely safe even by the Government Inspector. The floods must, therefore, have been very excep-

tional; & I hear that other railways have suffered in the same way as ourselves. The General Manager immediately took steps to convey passengers over by a road bridge lower down the river, & we hear by the last mail that a temporary bridge has already been completed, & the regular service of trains resumed. It took only 18 days to build this temporary bridge. In spite of this misfortune the traffics have continued good, & this is owing to the promptness & energy displayed by Mr. Grundy, our General Manager, & his officials in arranging for the transfer of the traffic, & as the cost of the new bridge can be met out of the reserve contingent fund, we think that the loss of the bridge will not have much appreciable effect on this year's net earnings. Before moving the adoption of the report & accounts, the board wish to congratulate the bondholders on the satisfactory earnings for last year, which enabled them to pay 2½% interest on the income bonds, the highest rate which has yet been paid since the Co.'s affairs were reorganized. The directors also feel sure the bondholders will join with them in congratulating Mr. Grundy & the staff generally in Canada on the good results of their efforts during the past year. I may mention that directly we heard of the Ottawa fire we cabled Mr. Grundy to send \$500 towards the relief fund, which I hope will meet with your approval.

The President moved the adoption of the report & statement of accounts. In answer to an inquiry he stated that when the St. Anselme bridge was last rebuilt it cost \$7,500, but now would probably cost more, owing to the rise in price of materials. The resolution was unanimously adopted.

E. Dent, A. Bremner, F. H. Norman, J. Price & S. G. Sheppard, London, Eng., & F. Grundy, Sherbrooke, Que., were re-elected directors. The other director, L. A. Carrier, of Levis, Que., is appointed by the Quebec Government.

Manitoba & State Railways.

The Canadian Gazette, London, Eng., says: The new Manitoba Government & Legislature have lost no time in assuming a decisive attitude in the matter of the State ownership of railways. On April 4 the Legislative Assembly adopted a resolution, introduced by Mr. Campbell, as a declaration of ministerial policy, memorialising the Dominion Parliament to give effect to what the resolution declares to be the pronouncement of the electors of the Province in favour of the Government ownership of railways as soon as practicable. The memorial asks that in pending & future legislation provision be made for the complete & effectual control of rates on such railways, including the fixing of maximum charges for both freight & passengers, & that the Province be given the right to acquire such railways on equitable terms based on the cost of construction, disputes as to value to be settled by arbitration. It is also asked that the Province be given the right to use such railways, for an equitable rental, in connection with any lines of railway that may be hereafter owned or operated by the local Government, & shall have first option of purchase on all such lines of railway. The Manitoba electorate have in their short career favoured many revolutionary proposals, & we do not suppose this latest venture is to be taken too seriously. Even if they got their way, they would find it one thing to reserve a right & quite another to exercise it. As far back as 1844 Mr. Gladstone induced the British Parliament to empower the State to take over the railways of this country after an interval of 21 years at 25 years purchase of the average yearly divisible profits for 3 years preceding such action; yet the British railways are still private property, & are likely to remain so. The Manitoba Legislature takes no

thought of intervals; it would have the power of immediate purchase; & in the matter of price, instead of 25 years' purchase, it suggests "equitable terms based on the cost of construction," a phrase the value of which depends upon the definition of the very elastic word "equitable." As a piece of legislative oratory the resolution sounds well, no doubt, in the ears of the electorate, but we do not imagine that it has real political weight. The control of railway rates & operations the Dominion Parliament is most unlikely to surrender to any Province, & as the Toronto Globe justly points out, the situation calls rather for an impartial tribunal that will not be affected by the political influences that sway the Dominion authorities in one direction & the Provincial authorities in another. "A railway commission that could assume a judicial attitude on all disputes as to rates & fares, & could thoroughly investigate all charges as to discrimination & other illegal practices, would be better qualified for the work than any Parliamentary committee, Federal or Provincial." Investors interested in Manitoba railways need not, we fancy, feel alarm—at all events, just yet.

Michigan Central Report.

The accounts for 1899 are as follows;

	1899.	1898.
Passenger	\$3,600,025	\$3,215,296
Freight	11,000,685	9,939,553
Mail, express, &c.	903,352	891,300
Total gross earnings....	\$15,504,062	\$14,046,149
Expenses & taxes.....	12,004,116	10,535,973
Net earnings.....	\$3,499,946	\$3,500,176
Income from investments...	44,678	44,678
Total income	\$3,544,624	\$3,544,854
Rentals paid	\$184,310	\$184,310
Interest on debt.....	2,229,975	2,235,625
Canadian Southern share...	300,574	300,667
New second track.....	65,000	70,000
Miscellaneous	10,326	—
Total.....	\$2,790,185	\$2,790,602
Surplus for dividends	\$754,439	\$754,252
Dividends (4 per cent.)	749,520	749,520
Surplus	\$4,919	\$4,732

The share capital of the company is \$18,738,000 & the bonded debt \$19,101,000. The balance at credit of income account is \$7,232,855.

The length of road operated in 1899 was 1,658 miles (same as in 1898); the number of passengers carried, 2,878,008 (against 2,600,032); the average rate per passenger per mile, 2.811 cents (against 2.225 cents); the quantity of freight carried, 10,212,988 tons (against 8,682,110 tons); the average rate per ton per mile, 0.564 cents (against 0.597 cents); the ratio of expenses to receipts, 77.43 per cent. (against 75.08 per cent.).

Toronto, Hamilton & Buffalo Ry.—At the annual meeting at the Queen's Hotel, Toronto, June 5, the directors were re-elected as follows:—W. K. Vanderbilt, S. R. Callaway, C. F. Cox, New York; J. N. Beckley, Rochester, N.Y.; T. G. Shaughnessy, Montreal; S. E. Peabody, Boston; H. B. Ledyard, Detroit.

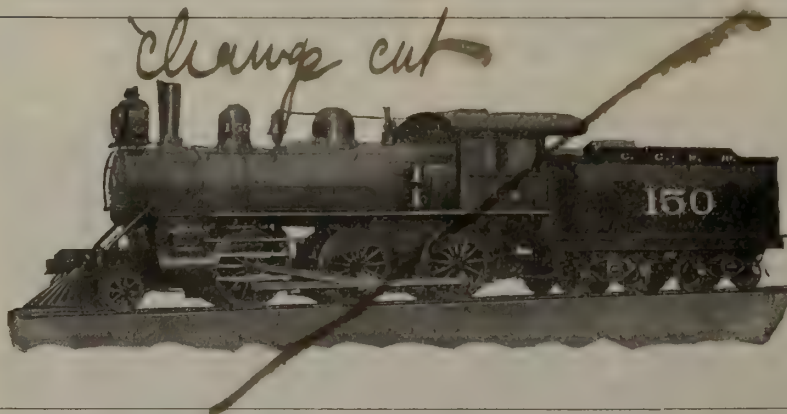
Central Vermont & Boston & Maine.—A Bellows Falls, Vt., despatch, of May 29, says: "An important arrangement has been made between the Grand Trunk & Boston & Maine railways. A traffic contract has been agreed upon, taking effect June 25, whereby the B. & M. is to run its freight trains over the 14 miles of track owned by the G.T. between Windsor & White River Jct. & connect with the Passumpsic road, a B. & M. leased line. In return the G.T. is to run its through New London boat freights over the B. & M. from Brattleboro to Windsor. This move will effect a considerable reduction in the operating expenses of both roads. The transfer station now maintained at Windsor will be abolished, & the force moved to White River Jct."

The arrangement referred to, if it existed, would be between the G.T.R.'s subsidiary, the Central Vermont & the B. & M. We are informed by a C. V. official that the despatch has no foundation, no such arrangement having been entered into.

The Cramp-Ontario Steel Co., Ltd., has been incorporated under the Ontario Com-

panies Act, with headquarters at Collingwood, Ont., & an authorized capital of \$5,000,000, to carry on a mining, reduction & development Company. The incorporators are C. D. & W. M. Cramp, Philadelphia; A. H. O'Brien & H. M. E. Evans, Ottawa; A. McL. Macdonell, F. A. Anglin, J. A. Currie, & N. McLean, Toronto, Messrs. Macdonell, Anglin & McLean being the provisional directors. It is said the Co. will erect a blast furnace & steel works at Collingwood, the town having granted a cash bonus of \$115,000 & a free site of 50 acres on the harbor, together with other privileges as to taxation & water front on the harbor. The following announcement is made as to the Co.'s intentions: The plant will consist of a blast furnace of 250 tons daily capacity, casting machines, three 30-ton open-hearth furnaces, to be operated on the basic system, so as to take care if necessary of the Canadian phosphoretic ores, also a blooming mill & a large rolling mill capable of producing steel rails, structural steel for buildings & shipbuilding purposes, & steel sheets for ship-building, bridges, tank & boiler purposes. The Co. will also produce nickel-steel ingots & castings, thus taking advantage of the market offered for this class of goods by the British Admiralty & fostered by recent legislation of the Ontario Legislature. The Co. has secured a promise of sufficient first-class Ontario iron ore to keep it in operation for five years. The new steel shipyard at Collingwood, it is said, will take at least one-third of the product of the plant annually.

The Wabash road has issued a circular announcing slight advances in the wages of enginemen & firemen. It does not appear from the published accounts whether all of the men on the road are affected, or if not, what divisions the order applies to. Certain passenger enginemen have their pay increased from \$3.35 per 100 miles to \$3.40. Freight conductors & brakemen receive increases of 10 & 5c. per 100 miles. Advances at about the same rates are granted to freight enginemen & firemen & to men on switching engines at



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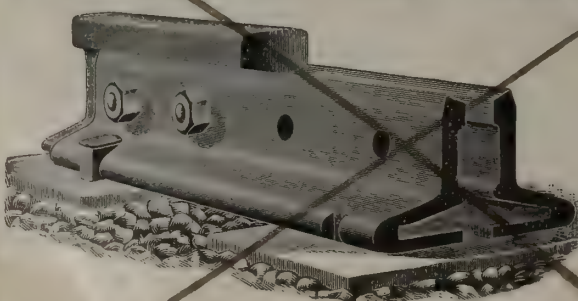
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a number of important stations. The Chicago, Rock Island & Pacific has increased the pay of passenger brakemen on certain branch lines from \$45 a month to \$47.50, & a similar advance is granted to brakemen on work trains. The request of switchmen at certain cities to have their pay put on a parity with the rate at Chicago has been denied. The Central of New Jersey has dispensed with the services of brakemen (flagmen) on helping engines used on mountain grades, & on certain freight trains the number of brakemen has been reduced from two to one.—Railroad Gazette.

THE ST. LAWRENCE ROUTE.

A St. John's, Nfld., correspondent writes:—It will be a matter of exceeding regret to every well-wisher of Canada that the opening of navigation in the gulf this season should have been marked by a serious misadventure—the loss of the Elder-Dempster Line steamer *Montpelier*, near Cap Ray, on May 4. The steamer was inward bound from the Canary Islands for Montreal, in ballast, & went ashore on Duck Island in a dense fog at 4 a.m., she going at half speed, & the captain supposing himself 15 miles to sea. The ship became a total wreck, but the crew escaped with their lives. A strong current, varying in its force & direction, & in this instance likely setting in on the land, is assigned as the cause of this shipwreck, & is probably the correct solution.

The disaster is regrettable for many reasons, but chiefly because the enemies of the St. Lawrence route will seize upon it as another argument in support of their contention that the gulf waterway is unsafe, & because the marine insurance underwriters will use it as an excuse for still further increasing their tariff of rates, already almost prohibitory. It will be remembered that when the *Scotsman* was lost in the Strait of Belle Isle last Sep. the catastrophe was made a peg on which to hang all sorts of adverse criticisms of the route, & it was openly threatened that any attempt to navigate that channel during the season of 1900 would be followed by an advance in the rates of insurance for ships & cargoes which would oblige steamer-owners to abandon the Belle Isle channel altogether. The Dominion Line, stricken by two losses, the *Labrador* in the spring & the *Scotsman* in the fall, did decide to abandon it, & use Cabot Strait, the southern waterway, instead, & it was thought the other leading lines would follow their example. The *Montpelier* shipwreck in Cabot Strait may now be held to prove that as dangerous an entrance as the other, though it should need but little argument to demonstrate the fallacy of any such reasoning.

There is no comparison between Belle Isle & Cabot Straits as to their relative degrees of safety, & people who use the one as an argument against the other show a very lamentable lack of knowledge of the subject. As a matter of fact, there are very strong and conclusive reasons against the use of Belle Isle; there are none whatever against Cabot Strait. Belle Isle Strait possesses every disadvantage possible to such a route. It is a channel between 40 & 50 miles long, & not more than 10 to 15 miles wide. Its narrowness is accentuated by the fact that the approaches to

it are by long and gradually converging coasts, creating tempestuous currents, which sweep into it from each end, & cause such a conflict of waters that there is no charting them. The region is almost constantly enveloped in fog, the rugged shores are but insufficiently lighted, the charts & sailing directions are necessarily imperfect, & the width of the waterway does not allow room for shipping to manœuvre properly, nor for navigators to make the allowances essential to a safe passage of such a land-bound channel. Furthermore, the Strait is altogether unsuited for the high speed which transatlantic steamers have to maintain, the jealousies of rival lines, & the desire to make record passages spurring shipmasters to disregard precautions which would otherwise be taken, for besides the dangers from the fogs & the currents there are the no less serious risks from collisions with bergs & flocs of ice, which are ever found floating in the Strait of Belle Isle & adjacent waters. These, indeed, constitute an even greater danger to shipping there than any other cause, for to the one ship which goes on the rocks two or three are damaged or sunk by collision with ice, as not a year pas-

proaches & compare them with Cabot Strait, & you must be convinced of the strength of the foregoing contentions, as well as of the one which follows, viz., that there is such an expanse of ocean east of Cabot Strait, & the trend of the coast is so easy & gradual, that there is less danger to the mariner in making a landfall than on any other part of the American continent. This is explained by the fact that almost everywhere else along the Atlantic seaboard a ship runs head on to the land, & if her speed is miscalculated the first thing known may be her telescoping her bows on the rocks, but in the case of Cabot Strait, the Newfoundland & Cape Breton coasts run almost parallel with her course, & should be sighted abeam, under all ordinary circumstances, & any deviations from the course rectified before she could possibly go ashore, unless the navigation was inexcusably deficient.

Analyzing now the matter of wrecks, it is our experience in this island that 90% of the shipping disasters on our south coast is in shipping plying to & from U.S. ports, & not Canadian ports, as is popularly supposed. The percentage of losses via Belle Isle is

large, it is true, but we will disregard that route for the purposes of this argument, the writer's view being that Canada, to uphold her commercial supremacy, should abandon Belle Isle altogether & utilize Cabot Strait. Therefore, it is stated definitely that the shipwrecks via Cabot are very few, all things taken into account. In five years only two laden east-bound steamers have gone ashore, the *Texas* in St. Mary's Bay, which became a total loss, though most of her cargo was saved, & the *Arcadian*, which took the ground near Codroy, but was got off after a week's pounding on the rocks. Other ships have stranded, but were refloated with little damage, & it may be said that for ships coming out the gulf this route represents the maximum of safety.

For ingoing steamers the risk is little, if at all, greater. The John Knox some years ago, the *Prudence* later on, the *Montpelier* the

other day, are the most conspicuous examples. The reasons before cited as showing the difficulty of striking the shore if ordinary precautions are taken must have applied, for disasters only occur when the currents, always variable, acquire an accession of force which sets at naught the best calculations of the most skilful navigators. In the case of the *Montpelier* the captain had sighted St. Pierre-Miquelon at noon the previous day & corrected his position accordingly, but the force of the current was so great that in a few hours it had set him in on the rocks, whereas the course he had laid should have brought him 15 miles south of Cape Ray & well towards the middle of the strait. This shipwreck is only one such as is reported daily from some part of the world, & implies no reflection of necessity on either captain or ship, not to say the route.

Most of the wrecks on our coast occurs on the southern spits of Avalon peninsula, the land-mass forming the south-east portion of this island, & of which Cape Race is the best known point. All transatlantic shipping makes Cape Race a base for sighting or departure, & as the gulf stream sweeps round this headland on its way to the north it has a



LAUNCHING OF THE CANADA ATLANTIC TRANSIT CO.'S STEAMER OTTAWA
AT TORONTO, MAY 23.

ses without one or more making this port to effect repairs from collision with bergs, while the crews of others which have gone down reach our coast in their boats & relate an all too familiar tale of disaster.

But with regard to Cabot Strait no such arguments hold good. To put forward an isolated case of shipwreck within its confines as an evidence that it is unsafe, is about as senseless as to argue that the English Channel is unsafe because the *Elbe* sank through a collision, or the *Mohegan* was lost on the Manacles. As a matter of fact, in point of sea-room & navigability Cabot Strait is superior to that of any of the approaches to the leading British commercial seaports. The width of Cabot Strait is 60 miles, greater than the average width of the English Channel, much greater than that of the St. George's Channel, & very much greater than the North Channel, & it is by these passages that we westerners obtain access to London, Liverpool & Glasgow. The neck of Cabot Strait is 54 miles across; from Dover to Calais is but 28, yet nobody ventures to question the safety of the latter passage in spite of all the British & Baltic trade which goes through it. Take a map of the United Kingdom, study the ap-

tendency to create minor currents which rush in towards the coast. These catch in their grip the west-bound steamers, & lure them to destruction on the stretch of shore which runs north from Cape Race towards St. John's, while St. Mary's Bay is ever open to receive the east-bound freighters which are cast into its gaping maw. The existence of these currents has been demonstrated by too many ghastly marine disasters the past 50 years for any doubt to be entertained as to their existence. Only 4 months ago a tragedy as appalling as any gave point to this fact. The oil-tank steamer Heligoland, from Philadelphia for Hamburg, was swept into St. Mary's Bay & on the rocks at Gull Island, & her crew of 35 men perished in full sight of the shore-folk, who were powerless to attempt to rescue them. The very week last Sept. that the Scotsman struck Belle Island & went to pieces, two ocean steamers, the Bay State, from Liverpool for Boston, & the Prodano, from Baltimore for Leith, went ashore on opposite sides of Cape Race, & both became total wrecks. Dense fogs & north-setting currents put them miles out of their course, & they piled themselves up, the first near Ferryland & the second near St. Mary's, within 24 hours of each other. Yet neither was a St. Lawrence router, & therefore, was free from the temptation to shave round the cape which a "gulf" ship might be open to, for, having abundance of sea-room, it might reasonably be argued that they would have given Cape Race a wide berth in view of the knowledge which every seafarer must possess as to the dangers associated with that section of our coast line.

It is impossible within the compass of this article to enumerate the number of wrecks which have taken place in this section of our coast; but, in addition to the foregoing, there may be mentioned the Anglo-Saxon, George Washington, Lantana, Robert Low, Martin Luther, Murchison, Capulet, Hanoverian,

Scottish King, Herder, Grasbrook, Daniel Sternman & Texas. Of these not more than two, the Texas & Herder, were gulf ships, the remainder hailing to or from ports farther south. Ships from U.S. ports make a board northward, skirting the Nova Scotia coast & passing inside Sable Island, thence continuing on an arc of a great circle towards Cape Race, & from it, after sighting the signal station, proceeding across to their destination. Ships from Europe reverse this route, but they all approach Cape Race as a landfall. The comparative immunity which the St. Lawrence shipping enjoys from these disasters is due to the fact that almost all the steamers on that route belong to regular lines, the officers of which are thoroughly drilled into the conditions of its navigation, the existence of the currents & the dangers to be avoided. It is the skipper of the tramp freighter, therefore, unfamiliar with the region & believing he can pick up Cape Race light by dead reckoning when no other means serves, who finds his ship with her bows beaten in on the rocks before he has properly realized that disaster has come to him. It is from such as these the wreckers reap their harvest.

"You're welcome, captain," said a grey-haired old settler near Cape Race a few years ago, as he went down to the beach to meet the crew of a ship that had just gone ashore, & who were making themselves safe by means of their boats. "We've been up these three nights waiting for you." And so they had been, for fog had prevailed during that period, & after a fog there is almost certain to be a shipwreck on this much-frequented headland.

The foregoing arguments have, I venture

to think, served to show that there is no warrant for decrying the St. Lawrence route via Cabot Strait, because of the supposed dangers attached to it. The last contention to be met is the one which condemns it because it is so much more frequented than Belle Isle. But if this is to be agreed to, what becomes of New York & Boston? Each of these ports has immense shipping interests & large fleets of merchant steamers. And yet collisions are rare. They are rarer still in Cabot Strait, & with a channel 54 miles wide at the narrowest part, there is no reason why, if all the St. Lawrence traffic was conducted by this waterway, they should become so frequent as to represent a serious menace to its safe transit. With proper tidal surveys, more lighthouses & fog alarms & better signal service, this Cabot route should be as safe as the middle of the Atlantic.

Now that the season's great water-borne traffic is beginning, Canada should review its position on this all-important problem of transportation. The commercial prominence of the Dominion depends in the main upon its providing a regular, efficient & perfectly secure means of conveying freight & passengers to the old world. It is essential to Canadian prestige, & as an advertisement of the country, that this route should be an all-Canadian one, & patronized as such. Equally imperative is it that it should possess every economy which can assist it in competing with the well-established routes & the steamship lines already in existence, while at the same time progressive enough to grapple with the ever-growing demands of the fertile west for export space, & to inaugurate features of utility

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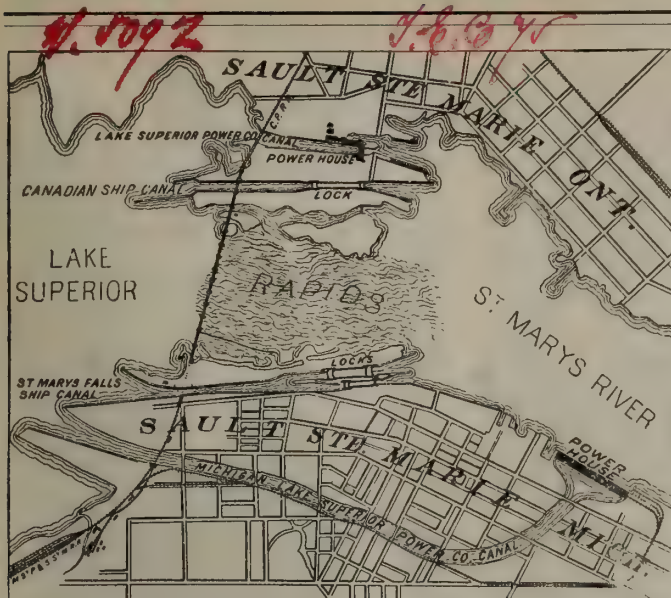
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MAP OF SAULT STE. MARIE SHOWING RAPIDS AND LOCATION OF POWER PLANT.

& convenience peculiar to itself. Montreal has by the advantages, natural & acquired, which it possesses, been established as the base for the successful development of these ventures; its port is to-day recognized as one of the world's great shipping centres, & during the six months it is open for marine enterprise, digests a volume of trade that is growing larger & more valuable every season. The decision of the Connors syndicate to make the port its headquarters, the building of large grain elevators & the amazing expansion of the western trade flowing to it, all indicate the advantageous position which Montreal occupies as the deep-water outlet for Canada's produce.

Unfortunately, however, the reputation of the St. Lawrence route will be discounted while the Strait of Belle Isle continues to be used instead of Cabot Strait. The one lacks the chief elements of a safe & navigable waterway, yet it is used because it is 160 miles shorter than the other, although Cabot Strait forms an ideal ship channel. The insecurity identified with Belle Isle will not compensate for the shortening of the distance, while the rarity of fogs in Cabot Strait will enable the voyage by that passage to be made as rapidly, on an average, as by way of Belle Isle, where the detentions from this cause are much longer. Furthermore, the underwriters have set their faces against Belle Isle, & have increased the rates by that route to a figure altogether out of proportion to those ruling for other ports on this side of the Atlantic. Shippers, as well as shipowners, are losers by this restriction, as well as by the clause recently included in policies by Lloyds, discriminating against British North American ports. There is no reason why the St. Lawrence route should suffer from this treatment, save that the evil reputation of Belle Isle has injuriously affected its standing with capitalists; & it behooves the people or Parliament of Canada to take steps ere long to remove from their country's chief waterway this stigma, which is not alone discrediting its prestige, but is crippling its legitimate development as a great producing country.

Canada needs to adopt Cabot Strait as the regular line of the St. Lawrence route, instead of using it only until the Belle Isle passage is free from ice. Making such strenuous efforts as Canada is to improve her canal system, & to provide ample & expeditious railway transport of other portions of her western products to tidewater, it is a pity that her efforts towards the creation of a substantial commercial prestige should

be frustrated in a large measure by the lack of a proper ocean highway, when one is available at her very doors in the shape of Cabot Strait, & without the expenditure of an extra dollar, save what would be called for to provide the necessary arrangements for diverting the traffic from Belle Isle. With the great Northwest absorbing thousands of settlers every year, & increasing its grain output by leaps & bounds, we are within measurable distance of the time when the present facilities for export will have to be largely supplemented along Canada's eastern waterfront. That will never be done while the antagonism to the St. Lawrence route which now prevails, continues to affect the financial world. Much of the traffic will be driven south to the U. S. seaboard, as is now the case, though there is no valid reason why it should be so; & Canada should make it a national matter, a stepping-stone to future prosperity & ultimate commercial greatness, to enforce the substitution of Cabot Strait for the present Atlantic passage by way of Belle Isle.—Toronto Globe.

The Sault Ste. Marie Power Canal.

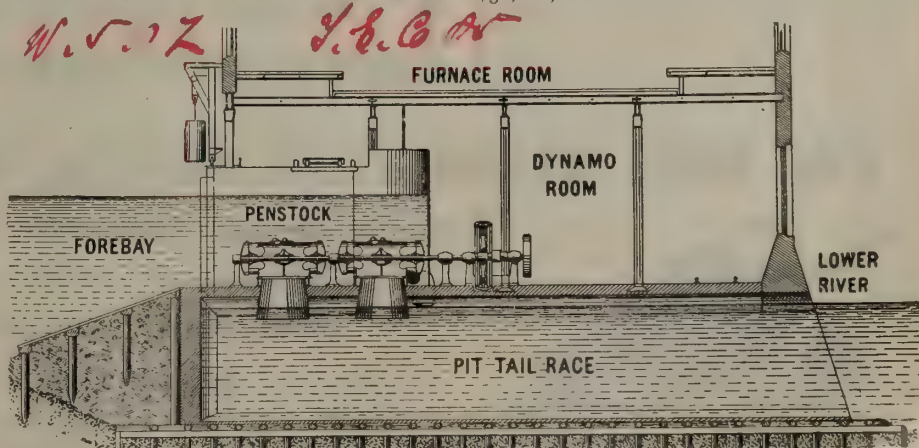
In this era of universal utilization of water power it must be no mean undertaking that is accounted the greatest hydraulic development ever attempted in America, & yet this superlative designation is precisely applicable to the great project which has been undertaken by the Consolidated Lake Superior Co. in the construction of a power canal at Sault Ste. Marie, Mich. The sister cities of Sault Ste. Marie, Ont., & Sault Ste. Marie, Mich., are situated on either side of the St. Mary's River which connects lakes Huron & Superior & through which passes the bulk of the enormous commerce of the great lakes. The river at a point opposite the cities takes a tremendous drop by means of rapids, & it was to obviate this obstacle to navigation that the Canadian & U. S. Governments expended millions of dollars in the construction of a number of canal locks, one of which is the largest in the world.

About the time of the construction of the

government locks the city on the U.S. side experienced a distinct boom, but it died out, after the fashion of booms, more than a decade ago. Now there appears to be opening for the little city of 10,000 people a wonderful future as a manufacturing centre. All the claims which have been made for the possibilities of development at Niagara Falls apply with equal if not greater force to Sault Ste. Marie. A water power canal half a mile in length is already in operation on the Canadian side, & a canal with a length of a mile & a quarter is under construction on the U.S. side. The canal on the U.S. side alone will supply a row of mills upon its banks more than a mile in length & will give each a fall of water of 18 ft. & an ample quantity. In short, the whole scheme is designed, as it has been aptly expressed, to turn the twin cities into one vast water mill, with Lake Superior as a mill pond.

The summary given, too, is but an elementary outline of the project, for there is in contemplation a plan whereby the generation of electricity will enable factories of various kinds to secure power over an area fully 15 miles in diameter. Senator McMillan, of Michigan, recently stated that he saw no reason why the water power should not be applicable to the mines & saw mills scattered so thickly throughout the adjoining territory, & a clue to the ultimate purposes of the master movers in this novel project may be gained from the fact that the same capital that is constructing the power canal is building a railway from Sault Ste. Marie towards Hudson's Bay, tapping unlimited storehouses of iron, nickel & copper.

The syndicate of U.S. capitalists which is responsible for the hydraulic improvements at Sault Ste. Marie first acquired a right of way on the Canadian side of the river. The Lake Superior Power Canal Co. was then formed & built a water power canal which developed 20,000 horse power. From the Lake Superior Power Co. as a parent organization there was formed on the Canadian side the Sault Ste. Marie Pulp & Paper Co., which operates the largest pulp mills in the world, & other manufacturing corporations. On the U.S. side the sub-organization took the name of the Michigan Lake Superior Power Co., & upon it devolved the development of the water power on that side of the river. Within the past year the Consolidated Lake Superior Co., with a capital stock of \$20,000,000, was formed to absorb the interest of all the original companies engaged in the development of the industries of the two new industrial centres. An incidental organization also recently perfected was the incorporation of the American Alkali Co., which will use a considerable proportion of the power provided by the U.S. canal. The last mentioned company, which will manufacture chemical products by electrolytic methods, has an authorized capital of \$30,000,000.



POWER HOUSE AT SAULT STE. MARIE. TRANSVERSE SECTION.

Measured according to the ordinary rules of hydraulics, the actual physical energy to be developed by the canal now under construction on the U.S. side will amount to fully 60,000 horse power. The power house within which this power will be transformed into electrical energy will be nearly 1,400 ft. in length, 100 ft. in width, & will rise 75 ft. above the water level. The building contains 81 turbine chambers, each being about 16½ ft. in width & containing four American turbines, installed in tandem fashion, & all connected to one shaft, at the end of which, outside of the turbine chambers, an electric generator is coupled. One of the turbine chambers, located in the central part of the building, will not be equipped with turbines, but will be utilized instead as a spillway through which accumulations of ice & debris may be discharged into the river without the possibility of the turbines sustaining any injury.

To facilitate description, the building may be divided into the component parts of foundation, substructure or pit, superstructure comprising pen-stocks & dynamo floor, mill floor & roof. The foundation consists of 10,000 20-ft. piles. The substructure consists of 81 pit walls, each 100 ft. long, 20 ft. high, & 3 ft. thick, being closed at the up-stream end by arch-shaped forebay walls of the same height & thickness. A concrete floor is laid between each two walls in the shape of an inverted arch, & the top is also closed by a concrete arch. The pit & forebay walls are formed from concrete blocks fabricated in imitation of cut stones.

It will thus be understood that the substructure consists of 81 concrete tunnels, each 100 ft. long, 15 ft. wide, & 18 ft. high, & open only at the downstream ends. Above these the superstructure is raised, consisting of 81 penstock partitions, each about 20 ft. high, 40 ft. long, & 17 inches thick. The downstream end between each two partitions is closed by a semicircular steel plate bulkhead. By this arrangement the turbine chambers proper remain open, of course, on the up-stream side & top. Here the turbines will be installed, receiving the water from the front & top & discharging it through the steel penstock tubes into the pit below, whence the water escapes into the river. The installation of electric dynamos will occupy that portion of the pits not devoted to the penstocks. For this there will be provided a continuous floor about 40 ft. wide & fully 1,400 ft. in length. The mill floor will be of the same length by 75 ft. in width.

Perhaps the best idea of the size of this great power house may be conveyed by the statement that there will be required for its construction 250,000 linear feet of piles; 100,000 linear ft. of 12 in. logs, 40,000 cubic yards of concrete, 3,000 tons of structural steel, & 10,000 cubic yards of stone masonry. The installation will consist of 320 turbines & 80 electric dynamos. The estimated cost of the building is in the neighborhood of \$500,000, & it is expected that the equipment will necessitate an additional expenditure of fully \$750,000.

Lake Superior has an area of about 30,000 square miles, & its mean outflow through the

rapids at Sault Ste. Marie is about 90,000 cubic feet per second the year round. The mean elevation of the lake is 601 ft., & the elevation of St. Mary's river below the rapids 582 ft., giving a vertical fall of 19 ft. The quantity of material to be moved in the construction of the canal on the U.S. side, amounts to more than 500,000 cubic yards of rock & considerably over 2,000,000 cubic yards of other material.

The manufacturing interests to be developed at the Sault will undoubtedly be of a most extensive character. Mention has already been made of the pulp mills, which give employment to a force of over 1,000 men. The Canadian Electro-Chemical Co., on the Canadian side, is the first in the Dominion to manufacture caustic soda & bleaching powder. The development of the nickel mines of New Ontario will be another ultimate result. These mines, which are about 120 miles distant from the Sault, are now capable of yielding 500 tons of ore a day, all of which will be utilized in the reduction works just constructed. These works will produce daily 250 tons of nickel steel, perfectly adapted to the requirements of armor plate manufacturers. It is claimed also that the process to be introduced at the Sault will so reduce the cost of production of nickel steel as to make it available for shafting & all other similar uses where severe strain is encountered. The Co. has already secured a contract to supply the Krupp plant in Germany. Then there is the general reduction works, intended to reduce to the most perfect purity ores of all kinds, & at so low a cost as to make of practical value

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many ores formerly considered useless. A calcium carbide works will be another feature.

The project for the establishment of the power canal at the Sault was proceeded with so quietly that the work was well under way before the general public learned much if anything regarding the scheme. It is now expected that the canal on the U.S. side will be in operation late in the present year, & those persons most thoroughly conversant believe that the Consolidated Lake Superior Co. will not be much behind its rival at Niagara Falls in the development of 100,000 horsepower.

During the early part of the present year the Lake Carriers' Association, comprising in its membership all the principal U.S. vessel-owners on the great lakes, became aroused lest the power canal project would affect the level of Lake Superior & the ship canal, & thus work serious injury to navigation interests on the inland seas. Representatives of the vesselmen's association declared before a committee of the U.S. House of Representatives that if the power canal lowered the level of the government ship canal around the rapids at the Sault so much as one inch, it would entail a loss of \$1,250,000 to the vessel & iron ore interests every year. Engineering experts have disagreed regarding the influence which the power canal will exert. Just what action will be taken is problematical, but that some legislative limitations will be exacted ultimately seems highly probable. Meanwhile, the excavation of the canal goes actively forward, & upward of 1,500 men are engaged in the work.—Waldon Fawcett.

THE CONNERS SYNDICATE.

Montreal, Duluth & Minneapolis Elevator Systems.

Towards the end of April the Syndicate submitted to the Montreal Harbor Commissioners plans for a 1,000,000 bush. grain elevator to be erected in Montreal, upon which the Harbor Engineer reported as follows:—"The plans indicate that the elevator is to be erected on the lower portion of the Windmill Point pier, between the Windmill Point basin & the canal basin, & that it is to be of a capacity of 1,000,000 bush. The site is according to the stipulations of the contract between the Commissioners & W. J. Conners & associates, but the capacity of elevator required by the contract is 3,000,000 bush., instead of 1,000,000, as shown by the plans. It is explained in conversation by G. T. Smith, on behalf of Mr. Conners & associates, that a detached storehouse of 2,000,000 bush. capacity is to be afterwards erected between the canal lock & the Windmill Point basin, & that the two buildings will be so arranged & so connected by conveyors as to act as one elevator with a total storage capacity of 3,000,000 bush. It is, however, to be noted that Mr. Smith's letter does not mention the proposed storage house nor do the plans show any provision for future connections between the two buildings.

"The following are the chief characteristics of the elevator shown upon the plans:

"The building is to be 274½ x 90½ ft. at the ground line, & 121½ ft. in height, from the level of the edge of the Windmill Point basin wharf to the top of the main building, & 191 ft. to the top of the cupola. It is to be placed at 24 ft. clear distance from the face of the canal & wharf, & about 79 ft. from the face of the harbor wharf, Windmill Point basin, & so as to extend 260½ ft., or the length of a canal boat, along the upper part of the canal basin. Its upper end will, therefore, be 12 ft. beyond the head of the basin. The car tracks which are on the first floor will be at a level 120.25 above harbor datum, or 13¼ ft. above the edge of the harbor wharf, which makes them above winter water level, & therefore acces-

sible by cars all winter, provided the tracks on the wharf to the southwest of the elevator be raised to the same height, as has been recently proposed. The marine legs for receiving from canal boats & the conveyors for delivering to vessels in the harbor are not shown on the plans, but the connecting spouts are indicated. The receiving & delivering speeds are not marked on the plans, but the sizes & arrangements of the elevating legs, conveyors, etc., indicate that the rate of handling will be very fast. The elevator will have 101 bins of about 9,500 bush., & 24 of about 3,200 bush. capacity each, making an aggregate of fully 1,000,000 bush."

The Commissioners decided that the plans submitted could not be entertained, on account of showing only one-third of the capacity agreed on. The Syndicate was notified accordingly & made a reply from which the following are extracts:—

"Supplementing the detailed information given to the Harbor Engineer, relative to the plans already submitted, we beg to say that the policy of procuring large storage capacity for grain by the construction of storage tanks, operated in connection with what is known among transportation people as a 'working house,' is so well established elsewhere that it was adopted here as a matter of course. Moreover, site 'A' being the only property covered in the allotment that was ready to receive improvements, it became rather a complicated engineering problem in what manner the buildings could be so distributed as to meet the immediate necessities of the port, & at the same time give economy & despatch in the operation of the plant. The accompanying ground plan, showing how, as it seemed to us, this could be accomplished best, contemplates:

"1. A 'working house' of 1,000,000 bush. capacity, plans for which are now in the possession of the Commissioners. This building would have a capacity for weighing & storing grain, at a rate not less than 25,000 bush. an hour, & probably much in excess of that amount; & of discharging at the rate of 1,000 bush. a minute. If worked to its capacity, during the season of navigation, it would handle twice the present business of the port.

"2. A 'storage house' of 2,000,000 bush. capacity, connected by conveyor belts with the 'working house.' Grain for this building would pass in & out through the 'working house,' the mechanical equipment of which is designed for 3,000,000 bush. capacity.

"3. Freight warehouses, covering all of the property not occupied by the other structures.

"This scheme of construction gives 272 ft. of warehouse room upon the canal basin, 1,170 ft. upon Windmill Point basin, & 260 ft. at the northerly end of the pier; & by the use of carriers & conveyor galleries along the roof of the warehouses, it would be possible to receive 3 canal & 2 ocean vessels at a time, & to unload grain & package freight upon the canal side, & discharge grain & package freight upon the ocean side simultaneously. It enables us also to utilize for the 'storage house' a portion of the property along the lower deck, which could not otherwise be used to advantage. The interior construction would be such that cars could be loaded & unloaded independently of the operations outside.

"The terms of sect. 9 of the agreement give the Commissioners such complete authority, not only over all plans, but over the specifications of all structures, that we saw no impropriety in sending those for the 'working house' in advance of the others, for the simple purpose of facilitating the work & making more rapid progress. We do not believe it will be held by the Commissioners that since the capacity agreed upon is supplied, it must necessarily be under cover of one roof. A 'working house' of 3,000,000 bush. capacity

would occupy all the space along the canal basin, & extend so far upon the ocean side of the pier as to seriously cripple the usefulness of the freight warehouses. The first cost would be large, & the amount of power necessary to operate it & the proportionate increase of operating expenses in other directions would make it a perpetual burden upon the business of the port. Its capacity would be so far in excess of the limitations of Windmill Point pier that it would, in this respect also, represent a useless waste of energy. The plans submitted are the best that engineering skill, united with experience, can produce; & we say that if the elevator is built here, following those plans, there will be no better structure anywhere in the world."

Engineer Kennedy gave his opinion that the arrangement proposed would be satisfactory, & that the building would cost over \$1,000,000. In a subsequent report he said—"The space allotted to the Syndicate has a canal frontage along the whole length of basin no. 1, of 544 ft., & on its opposite side it has a harbour frontage on the Windmill Point basin of 1,170 ft. The canal frontage is just long enough to berth 2 canal boats of the full length, which the enlarged locks will admit, & the harbor frontage is enough for 3 ships, of 390 ft. average length, or for 2 ships of much greater length. It is proposed to occupy one-half the canal frontage, that is one boat's length, by the 1,000,000 bush. elevator, of which plans were formerly sent in, & the other half by a 1 story warehouse. Beyond the warehouse, & clear of the canal basin, there is to be a grain storage house of 2,000,000 bush. capacity. In other words, the elevator, instead of being a single building, is to be divided in 2, & a package warehouse placed between them, & the whole to be so located that one-half of the canal basin will face one part of the elevator, & the other half will face the warehouse. The part of the elevator fronting on the canal basin will be the working house, & will contain all the motors & machinery & storage room for 1,000,000 bush.; the other part will be merely a storage house, with capacity for 2,000,000 bush., but no machinery, except belt & conveyors for connecting it with the working house & carrying grain backward & forward between the two.

"On the harbor front there is to be a large 2-story warehouse, 1,072 ft. in length, & of widths varying from 35½ ft. at the upper end to 249 ft. at the lower. Between & through the two ranges of buildings there are to be railways & roadways. The Connors' contract provides that there shall be erected on the Windmill Point site 'a 1st-class modern steel or combination elevator of 3,000,000 bush. capacity, & 1st-class modern warehouse, so that the full space will be required & actually used in their operation.' I am requested to say whether, in my opinion, the elevator & warehouses shown on the plans, & described in the letters thus far received from the Connors Syndicate, conform to the requirements of the contract. The plans received do not, in themselves, conform to the requirements of the contract, inasmuch as they are not complete, & are not accompanied by specifications. They show the structural features, & arrangements of machinery of the 1,000,000 bush. elevator buildings more fully, but show only the outlines & locations of the warehouses. Only the main features of the scheme of the buildings, & the proposal to provide the requisite elevator capacity by two buildings, instead of one, can, therefore, be dealt with at present. As regards the general scheme of the buildings, I am of opinion that in their location, dimensions & general arrangement, they do conform to the conditions of the contract. As regards the elevator, the contract uses the word 'elevator' in the singular, but that does not, in my view, require that it shall consist of a single building. What is proposed by the

present plans is essentially one elevator, divided into 2 buildings. The 1,000,000 bush. part is in itself a complete elevator, but the 2,000,000 part is not another such elevator. It is not complete in itself, but is merely a detached part of the other, & the two buildings make what is virtually one elevator of the stipulated capacity. I am, therefore, of opinion that the proposed elevator will, in respect of capacity & working, conform to the terms of the contract."

The Commissioners then decided to request the Syndicate to furnish details & specifications. Subsequently the Commissioners visited Duluth & Minneapolis to inspect the elevators there, & on their return the Syndicate plans were approved. Their report on their Western trip contains some interesting information about elevators, from which the following is extracted:

"The grain business of Duluth harbor mainly consists of the receiving of wheat by rail from the states of the West, & of storing it, and shipping it by vessels to the East, & the purpose of the elevators is, therefore, to make economical trans-shipment from cars to vessels, & to store such quantities as may be requisite from time to time. The shipment of wheat from Duluth harbor last year was 78,000,000 bush., & the aggregate capacity of elevators for this trade, apart from that used in the milling trade, is about 24,000,000 bush. As regards situation & mechanical equipment, the Duluth elevators are, of course, suited to their chief purpose of receiving grain from cars, & reshipping into vessels, & in this respect they furnish an example of what may be suited to Montreal, but on the other hand, the Duluth elevators lack the equipment for receiving from boats, which

must be provided for those in Montreal. As regards the storing of grain, as distinct from the handling of it, the conditions of trade & climate are so nearly alike in Duluth & Montreal that what suits one place will probably suit the other. In making our examination these points of difference & resemblance between the conditions of Montreal & those of Duluth were therefore kept in mind.

"We first visited a group of elevators belonging to the Consolidated Elevating Company, consisting of a series of buildings, two of which are what is known as working-houses, & two as storage-houses or annexes, stretching along a wharf frontage of nearly half-a-mile, & connected by belt conveyors. The first building, or that on the outermost end of the wharf, called elevator H, is a working-house equipped with a full set of elevator machinery for receiving grain from cars & delivering it into either boats or cars, & having a capacity of 1,200,000 bush., that is, it is a complete elevator of 1,200,000 bush. capacity, substantially the same as one of the C.P.R. elevators in Montreal, except that it is of larger size, & is situated close to the edge of the wharf. In line with elevator H, & about 400 ft. distant, is elevator F, another working-house also of 1,200,000 bush. capacity & similar equipment of machinery.

"Between the two is a belt conveyor, at ground level, by which grain is carried in either direction, & by which either elevator may be filled or emptied from the other. In the same line, & some 300 or 400 feet distant from elevator F, is annex E, a storage-house of 2,000,000 bush. capacity. It is, as its name implies, a storage annex to the working house. It has storage bins similar to those of the working-house, except that they are much

higher; but it receives & discharges grain only through the working-house, by means of the conveyor running between the two buildings, & it neither receives or discharges from or into the cars or boats direct, although within reach of both. On a pier by itself, & some 600 or 700 ft. distant from annex F, is annex G, also of 2,000,000 bush. capacity, & practically a duplicate of annex E. Between the two is a belt conveyor, which carries grain backward & forward as desired.

"There is thus a chain of 4 elevator buildings of an aggregate capacity of 6,400,000 bush. capacity, situated on 2 different piers occupying half-a-mile of wharf frontage, & all connected by a line of conveyors, but only 2 of them capable of receiving or shipping direct, & as we were informed, only one, elevator F, is ordinarily used. The group is of much interest in respect to the Montreal case, as showing that it has been considered best to divide the storage capacity into buildings of moderate capacity, rather than risk very large quantities of grain in one; & also as showing that although all the 4 buildings are accessible to cars and boats, it was not considered necessary that all should be fitted with machinery for receiving & shipping direct, or even that as a matter of convenience full advantage should be taken of all the direct shipping & receiving machinery, which is provided.

"The next visited were the Globe elevators, belonging to Mr. Peavy, consisting of 1,000,000 bush. working house, & two annex or storage houses of 2,000,000 bush. each, placed at distances of about 400 ft. apart. The working house is on a wharf at the end of the group, & it is of the usual construction, & has the usual machinery equipment for receiving

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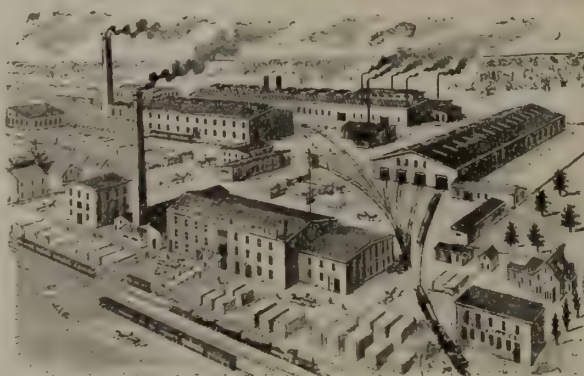
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of all descriptions.

Special Cars for Coal, Ore,
* Lumber, &c., with Ball-
* Bearing Wheels. *

from cars & discharging into boats or cars, & for charging the grain in its bins. The two storage houses are similar in size & equipment to those of the Consolidated Elevator Co., above described, & they are placed, not one opposite each end of the working house, but one beyond the other at the same end. Between the working house, & its nearest storage annex there are 2 belt conveyors, one at high level for connecting the tops of the bins; & the other at ground level for connecting their bottoms. Between the two annexes there is only one conveyor, & it is placed at ground level. The group is instructive as having an elevator & a storage annex of capacities respectively the same as those proposed for Montreal, & it is notable as being the only instance we saw in which two buildings are connected with more than one conveyor.

"Another group visited was the Great Northern elevators, consisting of a working house of 1,500,000 bush. capacity, & a storage house of 2,000,000, & in course of erection, another working house of 3,000,000 capacity. The existing working house is of the usual construction & is accessible to both cars & boats. The storage annex is placed diagonally inland at about 800 ft. clear distance, quite out of reach of boats & without direct connection with cars. Between the working & storage houses there is a conveyor of 2 parts, of about 800 ft., & about 100 ft. in length, respectively, placed at right angles to each other, & at ground level. The interest of the example is in the very considerable distance of 900 ft. to which the grain is carried inland from the existing working house to the annex. The new working elevator under construction is remarkable, not only in that it will be of the great size of 3,000,000 capacity, but that it is being built wholly of steel, & with rectangular bins.

"Of elevators with circular steel bins there are several examples elsewhere than in Duluth, but we are informed that this is the first trial of steel bins of rectangular shape, & that it therefore remains to be seen whether they will prove satisfactory or not. On the same basin, but on the opposite side, is a package freight warehouse, 1,600 ft. long, 120 ft. wide & 2 stories high, for the trans-shipping & storing of freight exchanged between cars & boats, which is of interest as being provided with both high & low level tracks so that cars may unload or receive at either story, or at both together.

"Another group is the Peavy, 700,000 bush. working house, & an 1,800,000 storage annex; & the Cargill working & storage houses, of the same capacities, at Old Town near Duluth. The two plants are on adjacent piers, are exact duplicates of each other, were built at the same time & just finished. The working house of each is placed on the outer end of the pier, accessible to cars & deep draught vessels, & the storage annexes are about 200 ft. distant from their respective working houses, on the inner ends of the piers, where the water is shallow. The case is of interest as being a very recent repetition by different experienced grain operators of the same arrangement of what may be considered the standard one in Duluth. Other examples might be described, but those given are considered sufficient.

"The following general observations may be added: All the elevator buildings of Duluth & Superior, so far as we saw, or could learn, are built of wood, covered with sheet iron, except the large Hill elevator under construction, which will be entirely of steel. No existing building is of over 2,000,000 bush. capacity, & all of such capacity are storage houses. No working house is of over 1,500,000 capacity, & the average sizes are about 1,000,000 for working houses, & 1,500,000 for storage houses. The difficulty of placing insurance on grain in very large quantities, & the higher premiums charged, were given us

as the chief reasons why preference is given to buildings not exceeding 1,500,000, or, at most, 2,000,000 bush. capacity. It is, however, to be noted that this applies especially to wooden elevators, & that it yet remains to be seen what the practical effect of fire-proof construction will be in allowing of larger capacities in one building. The Great Northern's steel tank elevator at Buffalo, & its new one, with rectangular steel bins, being built at Duluth, show that it at least has adopted 3,000,000 as an admissible size for fire-proof working houses.

"The elevators of Minneapolis present greater variety of fire-proof construction than do those of Duluth & Superior, & although the service for which they are built differs materially from that required in Montreal, we deemed it of importance that they should be visited, & especially so as there is there an experimental bin of new fire-proof construction, which we were informed it is proposed to adopt for the storage house in Montreal. In Minneapolis we found that the same practice prevails as regards the dividing of elevators into working houses & storage houses, & that when enlargements to existing capacities are needed they are invariably added in the form of detached annexes. We found several examples of cylindrical steel bins, & one elevator under construction having rectangular steel bins & wholly steel framing similar to those of the largest elevator being built at Duluth. We examined with much care & interest the experimental fire-proof bin, of the construction under consideration for the storage house for Montreal. It is a cylindrical bin, 20 ft. in diameter & 60 ft. in height, built of 2 thicknesses of glazed cellular tiles, with steel bands between to give the necessary strength & stiffness. It is proposed that those for Montreal shall be 32 ft. in diameter & 80 ft. in height, & that the spaces between the cylinders, as well as inside them, shall be used for storage."

A steamer was stopped at the mouth of the river owing to a dense sea fog. An old lady asked the captain the cause of the delay. "Can't see up the river," replied the captain. "But I can see the stars overhead," continued the old party. "Yes, but until the boilers bust, we ain't agoing that way," said the captain.

It is suggested that it will be profitable to try the experiment of using gas engines for driving ships, the gas being generated on the vessel itself. Coal will be roasted in retorts aboard the ship in order to drive off the gas for the engines. The coke thus produced, will furnish the fuel needed to roast the coal. The purpose of the experiment which is to take place is to ascertain whether the saving of weight of the gas-producing plant & gas-consuming engines over the ordinary plant of steam boilers & engines, & the saving of space, are sufficient to warrant the adoption of a new system.

The U.S. weather bureau has adopted an iron storm warning tower, which being constructed in sections, can be extended to a greater or less height, in accordance with the visual conditions of different ports. Near the top of the tower two powerful lens lamps are located, & above the lamps is the flagstaff from which day signals are to be displayed. The old inferior marine lantern, which consumes oil, & which has been displayed only from wood staffs, will be discarded & the display of danger warnings more efficiently made by the introduction of the new iron towers. Congress made an appropriation sufficient to equip one-half of the 300 display stations of the bureau during the coming year. The new towers will be distributed as equally as possible between the lake & sea ports, as only one-half of the service can be equipped during the coming year.

SHIPPING MATTERS.

Richelieu & Ontario Navigation Co.

The Co. began the operation of its mail line between Montreal & Toronto May 29.

Good progress is being made on the Co.'s new hotel, the Manoir Richelieu, at Murray Bay, which will very soon be opened for business.

The pursers appointed for the western route are as follows: str. Toronto, J. Tinning, Toronto; Bohemian, W. R. Tandy, Kingston; Algerian, H. M. Nimmo, Kingston; Hamilton, Capt. Baker, Cornwall; Corsican, J. D. Devlin, New York; Spartan, G. E. Hall, Napanee. H. Dubois, who has been purser on this route for many years, is transferred to the Saguenay route.

During the winter many improvements have been made on the vessels of the fleet. The str. Quebec has had new feathering wheels put on, & in place of large paddle boxes formerly used, small ones have been introduced. This gives 12 additional staterooms, besides improving the lighting & ventilation facilities of many more. New fittings for the staterooms, beds, etc., have also been put in all rooms. The dining-room has also been refitted. The str. Montreal has had her staterooms refitted & the dining-room & other portions have been redecorated. The str. Hamilton has received new feathering wheels, which will make her time between Montreal & Hamilton much faster than before. The Hamilton & the Algerian have been put on the Hamilton route, leaving Montreal on Mondays and Thursdays, at 7 p.m., in place of 4 p.m. as in previous years. The leaving time at Toronto & Hamilton has also been changed. The str. Spartan has been refitted throughout & will run between Montreal & Toronto. The str. Bohemian has been lengthened about 18 ft., making her 198 ft. over all. She will run in connection with the Toronto. The Corsican will also run on this route. The str. Longueuil has been completely rebuilt, improving her facilities to a great extent. The str. Carolina, Canada & Saguenay have been overhauled & will operate as usual on the Saguenay line. The running time between Montreal & Toronto has been shortened by 3 hours, owing to the improved steamers & the new Soulages canal, which will be used.

Maritime Provinces & Newfoundland.

The Sydney Ferry Co. has placed a new & larger boat than heretofore on the route from Sydney to North Sydney. The str. Hygeia has been put on a new route between Sydney, the west side & the International pier.

A recent despatch from Sydney, N.S., mentioned a rumor that one of the largest ship-building concerns in Europe was represented in Sydney by agents who were making enquiries with a view to the establishment of a shipbuilding plant on the west side of Sydney harbor.

A Sydney, N.S., despatch says:—"The management of the Plant Line of steamers has definitely decided to open communication directly between Boston & Sydney, the initial trip commencing at the former port on June 15. The str. Florida, which has been running between Boston & Southern ports for some years, has been engaged on the new line, & it is proposed to leave Boston Friday & Sydney Monday each week. The Florida is about the size of the str. Halifax, elegantly fitted up for passenger service, & is capable of carrying a large volume of freight. J. A. Young has been appointed agent at Sydney."

S. C. Brookfield, of Halifax, is endeavoring to interest Canadian & U.S. capitalists in a project for establishing large steel ship-building works. It is understood that leading members of the Dominion Iron & Steel Co. have been approached with a view to enlist

ing their financial interest in the enterprise. Such an industry would consume iron & steel produced at their Sydney works. The probable capital of the company is placed at \$20,000,000. Nova Scotia has never been reconciled to the loss of the great shipbuilding industry that once flourished in its numerous ports, an industry which perished when iron & steel took the place of wood. That a shipbuilding plant will eventually be a development of Canadian enterprise is a certain sequence of the iron & steel industries. Sydney, Halifax & Dartmouth are spoken of as locations for the works.

Province of Quebec Shipping.

Hon. R. R. Dobell visited Levis, May 2, & conferred with the Town Council on harbor improvements. The Dominion Government is going to spend considerable money at Levis, & the town has decided to make a free gift to the Government of the necessary water frontage for the construction of a wharf 800 ft. long. Mr. Dobell is also considering the erection of a grain elevator at Levis.

In a recent interview in Montreal, Traffic Manager C. J. Smith, of the Canada Atlantic Ry., said that although it took to Montreal last season 10,000,000 bush. of grain, it actually handled 20,000,000, & it was only the lack of vessels to carry the produce across the Atlantic that prevented it taking to it the other 10,000,000. "There were no ships in Montreal," added Mr. Smith, "to receive those 10,000,000 bush., & we had to ship them from Buffalo & other Lake Erie ports. Our greatly improved & enlarged lake fleet will bring down another 5,000,000 bush. this year, & we are anxious to ascertain how much of the 25,000,000 bush. of grain, or its equivalent in weight of other traffic, can be shipped by steamer from Montreal. If Montreal can only ship 10,000,000 bush., the same as last year, we shall have to take 15,000,000 elsewhere."

The Montreal floating elevator charges have been increased 20% this year over last. Last season when it became evident that better elevator facilities must be provided at the port the Co. reduced its rates 20%, but as the Conners syndicate will not have its elevator ready for

some time the floating elevator has restored the old rate. The difference in the charges amounts to \$100 instead of \$80, upon a barge load of grain of 50,000 bush. Upon a season's business at the port of, say, 5,000,000 bush., the addition would amount to \$50,000. The advance in rates took the grain trade completely by surprise. One of the chief companies interested—the Canada Atlantic—only learned it when its bills came in this morning for elevating done. One of the hardships connected with the advance of the rate without notice is that contracts had already been made on the basis of former rates for the purchase & transportation of millions of bushels of grain from Montreal, & considerable loss will be suffered in some cases. The Canada Atlantic Co., which has a three years' lease of the barges & floating elevators of the former Kingston & Montreal Forwarding Co., will most likely take its floating elevators from Kingston if the high rate is maintained, as the advance means quite a large item of increased expenditure for it. Andrew Allan, President of the elevator company recently stated to the Department of Public Works that it was understood when the cost of elevating was lowered that the reduction was only for one year. The quantity of grain handled at the port was likely to be less than last year owing to the scarcity of tonnage through so many vessels being engaged in the South African trade, & with the decrease in the amount that was likely to be handled the elevator company felt that it would not pay it to continue last year's rate.

Ontario & the Great Lakes.

The str. Marie Louise, owned by J. Parkin, was completely destroyed by fire at Lindsay, Ont., May 5.

The Minister of Railways recently announced that P. Daly, of Kingston, will be appointed General Inspector of the Rideau Canal at \$1,000 a year.

The Canada Atlantic Transit Co.'s package freight steamer Ottawa, which was fully described in our Mar. issue, pg. 89, was launched at Toronto, May 23. She will run between Parry Sound & Upper Lake ports.

The Canada Atlantic Transit Co. has invited tenders for 4 package freight steamers of 6,000 tons capacity, but in view of the high prices prevailing it is hardly likely that the contract will be given this year.

It is said the Rideau Navigation Co. will have a sister boat to the str. Rideau Queen built at Kingston this summer. The str. James Swift will then be used for excursion purposes after being altered for that business.

The International Navigation Co., of which A. B. Waloni, of Duluth, is President, is having 6 steamers constructed, designed to carry 5,000 tons of wheat each from Chicago to Europe via the Welland Canal. Four are to be ready before next winter.

This season the lake steamers of the Montreal Transportation Co. will not carry any passengers, as they have done in past years. The dredge Nipissing will remain at Kingston for at least part of the present navigation season, & will be employed in enlarging the channel.

It is expected that the Hamilton & Fort William Navigation Co.'s new steel steamer Strathcona will sail from England by June 10. The Strathcona & her sister vessel the Winona will be 255 ft. long, 42½ ft. beam, & 23 ft. 8 ins. deep, with a carrying capacity of 110,000 bush. each.

The Penetanguishene Navigation Co. recently incorporated under the Ontario Companies Act, with a capital of \$40,000 & head office at Penetanguishene, proposes doing a freight, passenger & towing business between Penetanguishene & Manitoulin Island. It owns 2 tugs, the John Lee, senr., & the Masonic.

The first of the fleet of ore carriers to be put on the upper lakes by the Lake Superior Pulp & Power Company, of Sault Ste. Marie, arrived at Montreal from England May 5, where she discharged a cargo. She proceeded to Toronto, took on a cargo of brick, & left for Lake Superior. The other three boats are expected shortly.

A London, Eng., cablegram says: "The shipping people here are making contracts for steamers in view of the opening of the 14 ft. channel through Canadian canals. There are

MANITOBA

The Government Crop Bulletin issued Dec. 12th, 1899, gives the following statistics for the year:

CROPS.

ACRES.	AVERAGE YIELD.	TOTAL.
Wheat.....1,629,995	17.13 bus.	27,922,230 bus.
Oats.....575,136	38.80 "	22,318,378 "
Barley.....182,912	29.4 "	5,379,156 "
Potatoes...19,151	168.5 "	3,226,395 "

STOCK.

Beef Cattle exported during the year	12,000
Stockers exported.....	35,000
Total value dairy products.....	\$470,559 09

10,500 FARM LABORERS

Came from Eastern Canada to assist in the harvest fields of Manitoba in 1899—and the demand was not fully satisfied.

MANITOBA FARMERS ARE PROSPEROUS.

Farmers erected, last year, farm buildings valued at one and one-half million dollars.

MANITOBA LANDS—For sale by the Provincial Government. Over 1,600,000 acres of choice land in all parts of the Province are now offered at from \$2.00 to \$5.00 per acre. Payments extend over eight years. **Special Attention** is directed to 500,000 acres along the line of the Manitoba and Northwestern Railway at \$3.00 and \$3.50 per acre.

FREE HOMESTEADS are still available in many parts of the Province.

For full information, maps, etc., **FREE**, address J. A. DAVIDSON, Minister of Agriculture and Immigration, Winnipeg, Manitoba. Or C. H. JEFFERYS, Manitoba Emigration Agt., Union Station, Toronto, Ont.

THE FAVORITE ROUTE

To New York and
.....Philadelphia

GRAND TRUNK RAILWAY

in connection with the

LEHIGH VALLEY RAILROAD

Route of the "Black Diamond Express," hand-somest train in the world.

Leaving Toronto daily (except Sunday) at 9 a.m., Hamilton 9.55 a.m., arrive New York 10.08 p.m.

Fast Night New York and Philadelphia Express, leaving Toronto 6 p.m. daily, arrive New York 9.13 a.m., Philadelphia 8.56 a.m.

Pullman Sleepers from Toronto, Hamilton & London to New York and Buffalo to Philadelphia.

Call on Grand Trunk Ticket Agents for tickets and further information, or address

Robt. S. Lewis

Canadian Pass'g'r Agent, 33 Yonge Street
Toronto.

Chas. S. Lee

Gen'l Pass'g'r Agt.
New York.

A. A. Heard

West'n Pass'g'r Agt.
Buffalo, N. Y.

All C.P.R. Agents in

MANITOBA,
ASSINIBOIA,
ALBERTA and
BRITISH COLUMBIA

sell through tickets to the Old Country, cheaper than if passengers bought railway tickets to New York or Montreal, and then re-booked.

They also sell prepaid tickets to passengers coming from the old country, cheaper than the rate obtainable in Europe, and on favorable terms.

Apply to any agent Port Arthur and west, or to

WILLIAM STITT,

C.P.R. Offices,
WINNIPEG.

great expectations of increased trade, especially in grain via the St. Lawrence, although some doubt exists whether the channel will be available upon the opening of navigation."

J. H. McLauchlan, of Owen Sound, has purchased from the Hamilton Steamboat Co. the str. Mazeppa, which has heretofore run between Hamilton & Burlington Beach. She was built at Toronto in 1884, her dimensions being, length 101 ft., breadth 20 ft., depth 5 ft. 7 ins., tonnage, gross 146, register 87. Mr. McLauchlan will run her between Owen Sound & Balmy Beach.

The str. Bannockburn ran past Port Dalhousie May 8 in order to shorten consort's tow lines before entering the harbor, as the wind was blowing strong from the west. After entering the harbor an exceptionally heavy squall carried the barge Dunmore to leeward so far that she struck the end of the east pier, breaking her stem at the water line & damaging her to such an extent as necessitated her going into dry-dock.

The Dominion Government str. Bayfield cleared from Owen Sound May 3 under Lieut. Stewart, to continue the hydrographic survey of Lake Huron. The season will be spent in making a survey of the east shore of Lake Huron from Stokes Bay to Goderich. When this section is finished the work on Lake Huron will be practically completed, as the remaining part of the coast to the St. Clair River requires little attention. Lake Erie & Georgian Bay have also been surveyed.

A Chicago despatch of May 23 says: "Lake rates on grain have broken, & there is a strong impression that they will continue to drop until conditions will necessitate a reduction in the present all-rail rates to eastern territory. Water tariff on corn, Chicago to Buffalo, is down to 1¼ c. a bush., on wheat 1¼ c., & on oats 1c. The lack of demand in the east is attributed by local shippers as the cause of the weakness in rates, & it is believed that within a week corn will be carried from Chicago to Buffalo for 1c. a bushel."

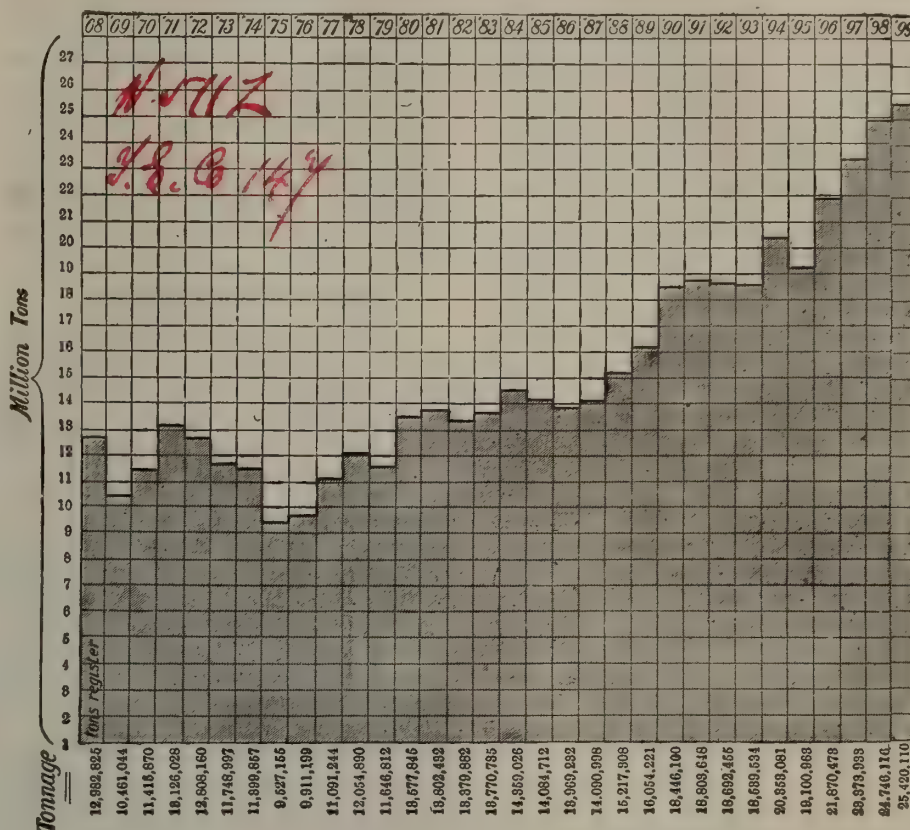
The owners of the str. Garden City & Argyle are at variance as to which shall have the monopoly of the Oshawa wharf. The Garden City was not allowed to tie up at the wharf recently unless a toll of 20c. a ton were paid. Many passengers were ready to board the boat to go to Toronto, but were disappointed, the Mayor of Oshawa declaring that the wharf was leased to T. G. Jackson of the Argyle Navigation Co. The Garden City steamed on to Toronto. Her owners say they will establish a stage line from Oshawa to Whitby.

The contract for Port Colborne harbor works has been awarded to M. J. Hogan, & A. R. Macdonell. The contemplated works aggregate about \$1,000,000, & consist of submarine rock excavation, dredging, cribbing & concrete piers. The work is to be completed in about two years. H. T. Dunbar, of Buffalo, an expert in submarine rock blasting & dredging, will most likely be associated with Hogan & Macdonell. Large orders for plant & material are being placed, & the works will be pushed vigorously day & night. The exposed position of the submarine blasting in the open Lake Erie will compel the contractors to take advantage of every calm moment in order to complete the work on time.

The U.S. House of Representatives Committee on Foreign Affairs have acted favorably on the joint resolution authorizing the President to invite Great Britain to join in the formation of an international commission, four from each Government, to consider the diversion of waters along the boundary of Canada & the U.S. The inquiry is designed principally to ascertain the effect of the level of the great lakes caused by improvements at the Welland canal, Sault Ste. Marie canal, & the Chicago drainage canal. The inquiry is to

SHIPPING AT CANADIAN PORTS.

The following diagram shows the total tonnage of vessels, British & foreign, sea-going & inland, exclusive of coasting vessels, which arrived at & departed from Canadian ports in each year ended June 30, commencing with June 30, 1868.



cover the entire lake region, including all the waters of the lakes & rivers whose waters flow by the River St. Lawrence to the Atlantic ocean. The joint resolution had previously passed the Senate.

The plans of the proposed buildings of the Dry Dock & Steel Ship Building Co., of Collingwood, have been completed. At first 3 buildings, a punch shop, & moulding loft, a furnace & blacksmith shop, & an office will be erected. The 1st, which will stand on the east side of the dry dock, will be 220 by 50 ft., with an addition for a boiler & engine room. The greater portion of the heavy machinery will be on the ground floor & for a moulding-room on the 2nd floor. The 2nd will stand at the east side of the lot & south of the freezer of the Dominion Fish Co. It will be 120 by 50 ft., & will contain the plate & bar furnaces, the hammer & the blacksmith shop. The 3rd, or office building, will be erected on the west side of the dry dock near the railway, & will be 24 by 60 ft., 2 stories high with a large garret, which will be used for a blue print room. The ground floor will be occupied as a store-room while the 2nd will contain the general offices & a draughting room. This building is now under construction. A carpenter shop will be erected later, also on the west side of the dry dock.

Water was let into the Soulanges Canal May 1. Owing to the electric lighting the canal can be used at night as well as by day. The advantage of the new canal, with its greater draught of water, is shown already by the fact that the Canada Atlantic Ry. has increased the size of its barges' cargoes from 25 to 50%. Moreover, its vessels leaving Coiteau at noon arrive at Montreal at night, a saving of time of 50%, compared with the time taken formerly by way of the Beauharnois Canal. The barge G. T. Dave, owned by the Co., upon her first trip this season

through the Beauharnois Canal took down 34,000 bush. of wheat, the draught of the loaded barge being 9 ft. Upon her second trip she went through the Soulanges Canal, carrying a load of 48,000 bush. of wheat, or 1,440 tons. This cargo was a record breaker, being the largest ever taken down the Lachine Canal. Her draught upon this occasion was 11½ ft. On a draught of 1 ft. additional she would carry her limit, about 53,000 bush., or 1,590 tons. A further illustration of the advantages of the new locks compared with those now to be abandoned is the fact that this barge could be lengthened by 50 ft., her present length, 181 ft., having been laid down to suit the old lock.

Notices to Mariners.

The Dominion Department of Marine has issued the following notices:

No. 15, Apl. 10, Quebec, 1. Change in gas buoys. 2. Fog-horn at Pointe aux Originaux discontinued.

No. 16, Apl. 10, British Columbia, 1. Hali-but Bank, Strait of Georgia. 2. Japan, colored sectors in lights.

No. 17, Apl. 10, Ontario, 1. Buoyage of the approaches to Midland Harbor. 2. Changes in lighting the approaches to Midland Harbor. 3. United States, Erie Harbor entrance. 4. Sandusky Bay & vicinity. 5. Sandusky Bay, outer range light station. 6. Detroit River. 7. Lake St. Clair. 8. River St. Mary. 9. Lake Superior, life-saving station at Grand Marais Harbor.

No. 18, Apl. 12, Nova Scotia, 1. Little Lorraine, light. 2. Hand fog-horns at Nova Scotia light stations. 3. Lunenburg, whistling buoy sunk.

No. 19, Apl. 17, Ontario, 1. Pelee spit light-house and fog-alarm destroyed by fire. 2. Ranges for ascertaining compass errors at

Port Dalhousie discontinued. 3. United States, Detroit Marine post-office regulations. 4. Buffalo Harbor, general information. 5. Niagara River, improvements in channel.

No. 20, Apl. 19, Ontario, chart of Bay of Quinte.

No. 21, Apl. 27, Ontario, Seguin Bank, buoy.

No. 22, May 1, Nova Scotia, Government rifle ranges, MacNab Island.

No. 23, May 4, New Brunswick, 1. Flewelling landing light increased in intensity. 2. Hand fog-horns, New Brunswick light stations. 3. United States, Maine, Little River light station.

No. 24, May 5, British Columbia, 1. Enterprize Reef, beacon. 2. Depth of Benwehr rock. 3. Empire of Japan—Formosa, Kelung lighthouse.

No. 25, May 9, New Brunswick, 1. Fog-bell at St. John Harbor light station. 2. Change in position of Quaco bell-buoy. 3. Conical buoy marking Quaco shoal. 4. Quaco ledge, bell-buoy placed.

No. 26, May 14, Ontario, lighthouse on Green shoal rebuilt.

The Emigration to Cape Nome.

An attempt has been made by the transportation companies interested in Alaska, & particularly in Cape Nome travel, to approximate the probable emigration to the latter port for the coming season, & the conclusion is that the estimates of 30,000 or 50,000 persons made by sanguine observers will hardly be reached. There are, as this is written (May 26), 58 steamers of all classes chartered for Cape Nome, to sail before June 1. The capacity of all these vessels is not beyond 15,000 travelers, & probably not more than 13,000 will take passage on the first trip. As far as learned, every steamer has been sold up; but, as is always the case, many persons will defer the trip & await further advices before making the uncertain venture. It is estimated that 5,000 tickets have been sold from San Francisco, & 8,500 from ports of Oregon & Washington. If all of these are used, the full capacity of all vessels now char-

tered will be appropriated. Estimating at 2,000, the number of people who wintered at Cape Nome, & the same number going from other Alaskan points, added to the 15,000 estimated to arrive from the south, would give 19,000 as the number likely to be found on the peninsula by July 1, 1900. The early arrivals are likely to experience great hardship in landing. In 1899 the ice disappeared on June 21. How those who arrive about June 1 are to land is a problem of infinite difficulty. The steamers will delay not a moment, & landing over the ice will be accompanied by great exposure & many uncertainties. The fatality is likely to be great. The subsequent voyages will be eminently easy. The crowd is out of the way & the difficulties of landing will all disappear.

British Columbia Shipping.

The Ship Drummair Co., Ltd., has been incorporated under the B.C. Companies Act to acquire & run the ship Drummair, registered at Liverpool, Eng.

Another tug has been added to the C.P.R. fleet by the launching of a 71-ft. boat at the C.P.R. shipyard at Nelson. She was built in about 6 weeks & is 71 ft. long, 14 ft. beam & 6 ft. draught. She went into the water with her engines & boilers already installed, ready to make steam at once.

The Dominion Government is securing parliamentary authority to continue the subsidy to the C.P.R. for its steamship service between B.C. & China & Japan for a further period of not more than 10 years, the subsidy not to exceed £15,000 a year for a monthly service or £25,000 for a fortnightly service.

According to San Francisco papers the Pacific Coast S.S. Co. is contemplating the construction, for the San Francisco, Victoria & Alaska run, of another passenger steamship. She is expected to be 270 ft. in length over all, with a breadth of 40 ft., or a trifle smaller than the str. Queen. Modern equipment is, however, to be her main feature, electricity being a special characteristic, & an observatory occupying the entire after portion of the hurricane deck. Electric freight & passenger elevators are a decided novelty in

the equipment plan, while the furnishings of the craft are to be luxurious.

A special committee appointed by the Victoria Board of Trade to consider the question of the improvement of Victoria Harbor has reported as follows: "To enable the steamers that are owned and operated to and from this port to safely enter and leave the harbor, a uniform depth of 16 ft. at low water is necessary. To obtain and maintain this depth it would be necessary to commence by deepening the entrance to the harbor, where a bar stretches across the harbor, and the depth in places is only 12 ft. of water. This bar forms a dam across the mouth of the harbor, preventing an outflow which would carry off a large quantity of the sediment. The whole of the harbor should then be dredged to a depth of 16 ft. of water at least up to the wharves and along their fronts, to enable the steamers when loaded to lie afloat. To maintain the depth of water required it would be necessary to dredge the upper harbor, which has filled up with an accumulation of soft silt, which, if not removed, would flow with the current into the excavations made in the lower harbor and fill them up."

Yukon & Northern Navigation.

The Yukon Flyer Line, Ltd., has been incorporated under the B.C. Companies Act, with a capital of \$60,000, & head office at Victoria. Among its very general powers are the right to own, charter & operate steamships on the lakes of Northern B.C. & elsewhere.

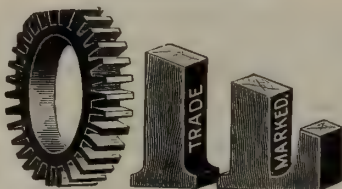
The str. Ameer, from Skagway, arrived at Victoria May 26 with news that the Yukon was open from Bennett down, excepting on Lebarge, which was still filled with ice. Five steamers reached Dawson. Cook's Inlet was free of ice. There is a combination of the Alaska Exploration Co. & A. C. Co. steamers to carry passengers from Bennett to Cape Nome for \$200.

General Manager Hawkins of the White Pass & Yukon route, recently made the announcement that upon the opening of navigation, about June 1, the operating system of

THE **QUEEN CITY OIL CO. LIMITED**
SAML. ROGERS PRES. TORONTO

SPECIAL

STEAM-BOAT
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"Sarnia" Benzine,
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A Popular Route to New York



Canadian Pacific, and Toronto, Hamilton
and Buffalo Railways in connection with
the **New York Central & Hudson**
River Railroad.

Leaving Toronto in the evening at 5.20 p.m. in one of the through sleeping cars of the Wagner Co., you are landed at Grand Central station, in the very heart of the City of New York, 4th Avenue and 42nd Street, at 8.15 next morning, adjacent to all hotels and business houses and avoiding the annoyance of transfer.

This is also the route of the famous
"**EMPIRE STATE EXPRESS**"

Fastest Train in the world.

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GEORGE H. DANIELS,

Genl. Passr. Agent, Grand Central Station,
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For Steam and Electric Railway, Steam-
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Embroidery in Gold and Silver Bullion,

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D. Douglas, Proprietor. Rooms en suite with baths and all modern conveniences. Rates \$2 to \$4 a day. Special rates for families and large parties, according to accommodation and length of time. Though moderate in price the Leland is first-class in every respect. It is especially adapted to please the commercial trade. It is in the centre of the wholesale and retail district. It is in direct communication with all parts of the city by car lines. It is supplied with the purest spring water from flowing well on the premises.

Back Numbers for Sale.

THE RAILWAY AND SHIPPING WORLD:
March to December, 1898, price... \$1.00
January to December, 1899, "..... 1.25
including postage.

Address

THE RAILWAY AND SHIPPING WORLD,
33 Melinda St., Toronto, Canada.

the White Pass & Yukon route would be extended to Dawson & Yukon River points. This was effected through a traffic arrangement with the Canadian Development Co., which operates a number of steamers from White Horse to Dawson. The understanding is that one of the C.D. Co.'s steamers is to leave the northern terminus of the road each day, & handle all the freight offered by the railway. The steamers which will be engaged are the Australian, Anglian, Canadian, Victorian & Columbian. Work on the extension of the railway from Bennett to White Horse is proceeding as rapidly as men & money can push it. By the opening of navigation it is expected that rails will be laid into White Horse & trains in regular operation. Then the worst difficulties of the trip from Skagway to Dawson will have been overcome. Mr. Hawkins says he expects to have a daily train & boat service from Skagway to Dawson, & to reduce the time of a through trip from Seattle to Dawson to an average of between 6 & 7 days. By the traffic arrangement goods will be billed & tickets sold through to Dawson from Puget Sound & B.C. points, saving the shipper the trouble of looking after his stuff en route. A terminal station will be established by the railway at Dawson. R. T. Elliott has been appointed Assistant Superintendent of the river division, & C. M. Chambers, General Agent at Dawson. By the new arrangement through contracts for shipment of goods may be made.

Telegraph & Cable Matters.

Toronto City Council has memorialized the House of Commons in favor of the Government acquisition of telegraph lines.

A storage battery of the latest & most improved type is being installed in the G. N. W. T. Co.'s office at Ottawa to replace 630 cells of Cellaud battery.

In our Feb. issue, pg. 59, we gave a full description of the C.P.R. Co.'s Telegraphs' new building on Hastings St., Vancouver. An illustration of it is given on this page.

The G.N.W.T. Co. reports brisk & increasing business throughout the country, & anticipates heavier business during the coming season than it has had for a great number of years.

For some time past rumors have been afloat respecting a proposed amalgamation of the Western Union & the Postal Telegraph companies. It is said, on what should be reliable authority, that they have no foundation in fact.

The G.N.W.T. Co.'s London office, which was totally destroyed by fire last Feb., is now fitted up in permanent shape, pending erection of the new building now being put up to replace the old one, & which the Co. will occupy when completed.

The G.N.W.T. Co. has placed a large order for enameled iron signs for its offices with the Acton Burrows Co., Toronto. They will be 10 x 19½ inches, including a flange, so that they will project from buildings, poles, etc. They will be lettered on both sides "G.N.W. Telegraph Co.," in white letters on blue ground.

The Pacific Cable Board has held a further meeting without being able to announce a solution of the difficulty with New South Wales & Victoria regarding landline concessions. The Eastern Co. Board, however,

still expresses confidence that Mr. Chamberlain, who is now in direct correspondence with Sydney & Melbourne, will secure the end it has in view.

The Canadian Northern Ry., which operates its own commercial telegraph, has placed an order with the Acton Burrows Co., Toronto, for enameled iron signs for its telegraph offices. They will be 22 x 8 inches, lettered on both sides "C.N.R. Telegraph," in white letters on dark blue ground, & will be made with a flange so as to project from the buildings at right angles.

The G.N.W.T. Co. is about to erect a new wire over the whole line of the I.C.R. between Moncton & Montreal, the business of the road since the Drummond County Ry. has been taken over having increased to such an extent as to make additional facilities necessary. A new line is also to be erected in the near future between Quebec & St. Flavie in

other places with which the Montreal office has direct connections never knew that any change was going on, & business was uninterrupted. The work of moving the busiest lines was performed on a Sunday, outside of office hours, so that no possible encumbrance to business could be caused.

In the U.S. Senate May 1 Senator Lodge moved to substitute in the bill on appropriations for the establishment of a military telegraph with Fort Egbert, Cape Nome & other military points in Alaska, a paragraph in these words: "For the purpose of establishing a military telegraph & cable lines to Alaska, \$450,550." The original bill provided for a similar appropriation, but designated the route, & the Senate Committee on Appropriations had recommended striking it out. Senator Lodge said that his amendment did not bind the Government to any route, but left the matter open to be arranged in conference, & he spoke of the importance of keeping absolute control of the cable route from Alaska to Asia. It would be a great mistake, he said, to allow a foreign Government or company to establish such a line, & he understood that there was a Canadian company established with a Government subsidy of \$250,000 a year. The amendment was agreed to, & Senator Lodge moved to add to it these words: "Provided no telegraph or cable line, owned wholly or in part, or operated or controlled by persons not citizens of the U.S. or by any foreign corporation or Government, shall be established in or permitted to enter Alaska." Senator Bacon asked Mr. Lodge whether that would also keep land telegraph lines from running into Alaska, & Mr. Lodge said it would. The proviso was agreed to.

General Telephone Matters.

The Bell Co. is extending its underground system in Winnipeg.

The Bell Co. has installed a double line between London & Strathroy.

The Bell Co. has issued a new edition of its telephone directory of Eastern Ontario.

The name of the Callander Telephone Exchange Co., Ltd., has been changed by supplementary letters patent under the Dominion Companies Act to that of the American Machine Telephone Co., Ltd.

Telephone connection is being established between Beaumont & Edmonton, Alta., 15 miles, the Dominion Government supplying line material & instruments, & the local residents putting in the poles & supplying labor for construction work.

Daly & Hamilton, solicitors, Rossland, give notice of application to the B.C. Legislature to incorporate a company to construct & operate telephone & telegraph lines within & throughout all the cities, towns, municipalities & districts of the mainland of B.C.

It is said the New Brunswick Telephone Co. is about to extend its system by building a long distance line from St. John by way of Bonny River & St. George to St. Andrew's, thence on to St. Stephen & Calais, Me., to connect with a U.S. line at the latter point.

The telephone has proved very successful in the Western States in places where different farm-houses are connected by wire, as it enables them to give each other timely warning of the approach of tramps. It is also useful in cases of fire & sickness. The possibilities of the telephone in rural districts are very great.



C.P.R. TELEGRAPH BUILDING, VANCOUVER.

order to provide additional facilities for the shipping interests.

On May 7 the C.P.R. Co.'s Telegraphs moved from the premises it has occupied in Montreal since its inception, 4 Hospital St., to 49, 51 & 53 St. Francois Xavier St., where it will remain till the new building is erected on the old site. Preparatory work was commenced early in April under Superintendent Camp. First of all, the switches were established in position. After this the cables were connected by temporary cables through the new office with the former quarters. When the actual moving time came three tables were first arranged in the new office, & as soon as the wires intended for them were released the connection with the old office was cut, & the new connection established, a matter of five minutes' work. Then the three cables released in the old office were brought over, so that the work was not interrupted, & the offices in Vancouver, Winnipeg, Halifax, St. John, New York, Chicago, Canso & the

ASSESSMENT SYSTEM.



THE BEST FRATERNAL BENEFIT SOCIETY IN THE WORLD.

THE SPLENDID RECORD OF THE I.O.F.

Cost to Join the I.O.F.**(For \$1,000 Mortuary Benefit.)**

Initiation fee (minimum).....	\$1 00
Certificate fee.....	1 00
Registration fee.....	1 00
Medical Examination fee.....	1 50
Total minimum cost.....	\$4 50

(For more than \$1,000 Mort. Benefit.)

Cost to take \$2,000 Mort. Benefit..	\$6 00
" " \$3,000 " " "	7 00
" " \$4,000 " " "	9 00
" " \$5,000 " " "	10 00
Sick benefits, when required, cost extra.	

Benefits given by the I.O.F.

- 1.—**Social and Fraternal Privileges** of the Court Room.
- 2.—**Free Medical Attendance** by Court Physician where not dispensed with by Court by-law; also trained nurses in certain cases.
- 3.—**A Sick Benefit** of \$3 to \$5 per week, subject to provisions of the Constitution and Laws of the Order; optional, and when taken costs extra.
- 4.—**A Total and Permanent Disability Benefit** of one-half of face value of policy, with exemption from further payment of premiums or Court Dues.
- 5.—**An Old Age Benefit** consisting of exemption from payment of premiums and Court dues after age 70.
- 6.—**An Old Age Disability Benefit** of one-tenth of face value of policy payable yearly for ten years, on being declared totally and permanently disabled by infirmities of age after the seventieth birthday.
- 7.—**An Old Age Pension** payable during disability, which may be taken as a substitute for the Old Age Disability Benefit.
- 8.—**A Burial Benefit** of \$100 at death of a Pensioner.
- 9.—**A Funeral Benefit** of \$50 at death of a member enrolled in Sick and Funeral Benefit Department.
- 10.—**The Mortuary Benefit** of \$500, \$1,000, \$2,000, \$3,000 \$4,000 or \$5,000.

The Members, the Benefits, and Their Assurance

At 31st December Each Year.

Year.	Total Membership.	Benefits Paid.	Total Surplus.	Surplus per Capita.	Death Rate per 1,000.
1881	1,019	\$ 1,300 00	\$ 4,568 55	\$ 4 48	4.50
1882	1,134	12,058 86	2,967 93	2 61	11.00
1883	2,216	9,493 68	10,857 65	4 91	4.73
1884	2,558	13,914 31	23,081 85	9 01	4.23
1885	3,642	26,576 99	29,802 42	8 18	7.76
1886	5,804	28,499 82	53,981 28	9 30	4.85
1887	7,811	59,014 67	81,384 41	10 44	5.78
1888	11,800	89,018 16	117,821 96	9 98	6.43
1889	17,349	116,787 82	188,130 36	10 84	5.85
1890	24,604	181,846 79	283,967 20	11 54	5.18
1891	32,303	261,436 21	408,798 20	12 65	6.40
1892	43,024	344,748 82	590,597 85	13 49	6.25
1893	54,484	392,185 93	858,857 89	15 76	5.47
1894	70,055	511,162 30	1,187,225 11	16 94	5.47
1895	86,521	685,000 18	1,560,733 46	18 03	5.67
1896	102,838	820,941 91	2,015,484 38	19 60	5.50
1897	124,685	992,225 60	2,558,832 78	20 52	5.56
1898	144,600	1,176,125 14	3,186,370 36	22 12	5.67

For Further Information Respecting this Great Fraternal Benefit Society, Apply to

Oronhyatekha, M.D., S.C.R., Toronto, Ont.

John A. McGillivray, Q.C., S.S., Toronto, Ont.

James Marshall, 24 Charing Cross, London, Eng.

A. E. Stevenson, 6436 Kimbark Ave., Chicago, Ill.

Or Any Officer or Member of the Order.

The Bell Co. is about to build its first long distance lines in Manitoba, running westerly from Winnipeg as far as Brandon, connecting Portage la Prairie, McGregor, Carberry & other intermediate points. A line will also be built from Carberry to Neepawa, thence to Minnedosa. It is said connection will be made with U.S. lines.

The recently completed Dominion Government telegraph line between Kamloops & Nicola, B.C., has been changed to a telephone line, & offices have been opened at Quilchena, Nicola Lake & Lower Nicola, with a rate of 25c. for a 10 words message. For conversation the charge is 50c. for 3 minutes, & 10c. for each additional minute.

At the recent annual meeting of St. Martin's Telephone Co. in New Brunswick the following were elected: President, J. McLeod, M.P.P.; Vice-President, W. H. Allan; Secretary Treasurer, A. W. McMackin; other directors, C. M. Bostwick, C. D. Trueman, W. E. Skillen. It is said the line will be considerably improved this season.

At the recent Napanee, Ont., assizes, the case of Shanks vs. the Bell Telephone Co., a claim for injuries sustained by plaintiff's eight-year-old boy, was settled, defendant paying \$2,250 into court for the child, & \$600 for the father. The child lost hearing & sight on the left side through the upsetting of a forge containing red-hot coals, placed by Co.'s employes on a street at Smith's Falls.

In the Bell Co.'s Ottawa exchange, the bell-ringing system has given place to automatic signalling telephones, the interesting feature of which is that instead of ringing the bell as formerly, the subscriber has only to put the 'phone to his ear. The act of removing it from the hook flashes a signal lamp at central, & a prompt response is made. When the 'phone is replaced on the hook, another signal is given which notifies central that the conversation is ended.

What is said to be the longest submarine telephone cable in the U.S. has been laid through the Straits of Mackinac, on a line connecting Marquette with Detroit, & other cities to the eastward. The length of the submarine portion of the line is not stated in the press despatches, which are the source of our information. This cable was laid by the Michigan Telephone Co., & tests of it are said to have been highly satisfactory. It is said that at the time of the tests conversation was carried on between Marquette, Mich., & Pittsburg, Pa.

The Bell Co. has, until recently, on its long distance lines had a time unit of 3 minutes for business east of Toronto, & 5 minutes on business west. A three-minute unit has now been adopted throughout Canada in harmony with the most common practice in other countries. The Michigan Co. has, however, adopted a one-minute unit. Experience shows that a very great proportion of conversations do not extend beyond 2 or 3 minutes. On 5-minute unit business the overcharge was formerly charged at half the initial rate for each period of 5 minutes or fraction thereof. Now, overtime is charged per minute.

A cheap fence telephone system for farmers has been in use in Texas for a long time. At Midland, on the southeastern foot of the great Staked Plain, a large number of outlying cattle ranches are connected with the city telephone system in this manner. Some of the lines are 25 to 50 miles in length, & one is said to be 100 miles long. The distance, owing to the angles, is usually twice the air line length. During ordinary weather they render perfect service, in damp weather they work rather poorly, owing to lack of insulation. The practicability of this plan has been known in that section for some years. It is said to have had its origin in Australia.

The Erie R.R. is equipping a large number of its block signal stations with telephones. On the Erie, electrical communication between block signal cabins is had by means of bells, with the usual English bell code, so that, except where the signal cabin is at or near a station where the Morse telegraph is established, the signalmen have no way of communicating with one another over the wire except by the limited vocabulary of the bell code. The telephones are introduced to make up for this deficiency. They are worked over the same wire which is used for bell signals. The report that the Erie would abandon the bells in some or all of its cabins, & use nothing but telephones for block signalling, is untrue.

The Nova Scotia Telephone Co. has been extending & improving its service for some time past. The whole of that part of the province through which the wires of the Co. are laid now enjoys the benefits derivable from a metallic circuit. The Co. has spent so much money throughout the province in its improvement works, that it has not hitherto had as much funds available for the city of Halifax as the users of the service there could have wished. However, they will have the reward of their patience soon, as the Co. now proposes to install very extensive improvements, one item alone being a \$40,000 switch board at the exchange which will greatly facilitate the handling of the growing traffic over the Co.'s wires.—Maritime Merchant.

New subscribers to the Bell Co.'s exchange outside of the mile limit in Toronto, are being charged an increased rate. The Co.'s agreement with the city, providing for specified rate, having expired, the Co. has reinstated the old extra mileage rate for 'phones over a mile from the exchange. The Co. is not increasing its rates to old subscribers, it is only the new ones that are charged the higher price. In a recent suit against the Gas Co. in Toronto, Judge MacLennan decided that the Co. need not sell gas to everyone who applied for it, even although they were willing to pay the price asked by the Co. Under this precedent the Bell Co. may not be obliged to rent a telephone to anyone who applies for it, unless he is willing to pay the Co.'s rate.

Dominion Government Telegraph Lines.

The following table shows the various telegraph lines comprising the Dominion Government Telegraph service:

Points Connected.	Land Lines. Miles.	Cables. Knots.	No. of Offices.
Newfoundland.			
Port au Basque—Cape Ray.	14	.....	2
Nova Scotia.			
North Sydney—Meat Cove (with loops).....	147½	.....	13
Across Bras d'Or Channel.....	.....	.....
St. Ann's Harbour.....	.....	.....
Ingouish Harbour.....	.....	.....
Meat Cove—St. Paul's Island.....	.....	20	2
On St. Paul's Island.....	3	.....
Mabou—Cheticamp.....	63	.....	7
Barrington—Cape Sable.....	16	.....
Across Bear Point Channel.....	1½	.....	Leased.
Lt. House Channel.....	.....	.....
New Brunswick.			
Chatham—Escuminac.....	42	.....	5
Bay of Fundy System:			
Eastport—Campobello.....	.....	12	8
On mainland, Eastport.....	.....	.....
On Campobello Island.....	75	.....
Campobello—Grand Manan.....	.....	74	
On Grand Manan Island.....	251	.....	8
Grand Manan—Cheney's Island.....	.....	1	
On Cheney's Island.....	3	.....	2
Cheney's Island—Whitehead Island.....	.....	.....

Points Connected.	Land Lines. Miles.	Cables. Knots.	No. of Offices.
Quebec.			
Bay St. Paul—Chicoutimi.....	92	.....	6
Branch St. Alexis to L'Anse St. Jean.....	40	.....	1
Murray Bay—Big Romaine.....	628½	.....	40
Across Saguenay River.....	11	}	
Bersimis to Manicouagan.....	12		
Manicouagan to Godbout.....	26		
Quarantine System:			
Quebec—L'Ange Gardien.....	13	.....	7
L'Ange Gardien Orleans Is- land.....	.....	3	
On Orleans Island.....	29½	.....
Orleans Island—Isle Réaux.....	2	}	
Isle Réaux.....	2½		
Isle Réaux—Grosse Isle.....	2		
On Grosse Isle (all told).....	3½	.....
Anticosti System:			
Gaspé—L'Anse à Fougère.....	28	.....	10
L'Anse à Fougère—Anticosti.....	44½	}	
On Anticosti Island.....	223½		
Anticosti—Long Point, Min- gan.....	21		
Meat Cove (C.B.)—Magdalen Is- lands.....	83	55½	9
On Magdalen Islands.....	.....	.....
Ontario.			
Pele Island System:			
Leamington—Point Pelee...	12	.....	10
Point Pelee—Pelee Island.....	92	}	
On Pelee Island.....	12½		
North-west.			
Qu'Appelle—Edmonton and St. Albert.....	607½	.....	15
Moosejaw—Wood Mountain.....	90½	.....	2
British Columbia.			
Ashcroft—Barkerville.....	276½	.....	8
Kamloops—Lower Nicola.....	67	.....	*
Alberni—Cape Beale.....	57	.....	*
Victoria—Cape Beale.....	118	.....	7
Nanaimo—Comox and Alberni.....	110½	.....	8
Ashcroft—Lillooet.....	62	.....	1
Yukon.			
Lake Bennett—Dawson & Atlin..	639	.....	*
Total.....	3,514½	207½	164†

* The number of offices on these lines are not given.
† Not including lines marked thus *.

The line from Port au Basque, Nfld., to Cape Ray is operated under agreement with the Anglo-American Telegraph Co. The Ashcroft-Barkerville line & the Victoria-Cape Beale line in B.C. are operated by the C.P.R. Co.'s telegraphs, which retains the revenue, the Government reimbursing the excess of expenditure over revenue.

Work is going on on the completion of telegraph communication all around the coast of Cape Breton, by filling in the gap of about 40 miles between Cheticamp & Meat Cove.

On the north shore of the St. Lawrence the line from Murray Bay to Big Romaine, 628½ miles, is being extended to Chateau Bay opposite Belle Isle, a further distance of 315 miles, the contract calling for its completion by June 30.

During the past fiscal year, the following lines were built: Alberni to Cape Beale, Vancouver Island, 57 miles; Kamloops to Lower Nicola, B.C., 67 miles. This line has since been converted into a telephone line.

The expenditure on the various lines during the past fiscal year was \$88,503.59, & the revenue \$10,472.99.

The line now being built from Quesnelle, B.C., to Atlin, to connect with the line to the Yukon, is expected to be completed by Nov. J. B. Charleson, who is in charge of construction, stated at Vancouver recently, that he had inspected the line as far as constructed, to 90 miles beyond Quesnelle and 45 miles beyond Blackwater, or 310 miles from Ashcroft. There were 50 men engaged on the Ashcroft end, besides packers. Two lines have been strung across the Fraser River 3 miles above Quesnelle. They stretch 1,200 ft. from shore to shore, without supports.

The last report from the Atlin end, on May 3, said the 50 men engaged at that end had wires up 75 miles from Atlin, and had spanned the Nakeena with 2 wires. That chasm is 700 ft. high, & 2 heavy cables had to be strung to get supplies across. The report said the Teslin trail would be reached in 10 days. Mr. Charleson says that after Teslin is passed very rapid progress will be made to Telegraph Creek, but the Ashcroft end will be completed to Hazelton before the men on the Atlin end can reach there, though he believes that the circuit will be completed at Hazelton quite within the specified time. There are about 800 miles of country yet to cover.

Among the Express Companies.

Both the Canadian & Dominion Ex. Co.'s staffs have contributed liberally to the Canadian Patriotic Fund.

The Dominion Ex. Co. has opened a route on the extension of the C.P.R.'s Pipestone branch, between Menteith Jct., Man., & Antler, Assa.

Plans are being prepared for additions to the Union station, Toronto, to give the Dominion & Canadian Ex. Co.'s more room for their rapidly increasing business.

The Dominion Ex. Co. has opened the following offices: Antler, Assa.; Erickson, B.C.; Fort Frances, Mine Centre, Hammond, Melville Jct., Niagara, Queenston, Ont.

The Dominion Ex. Co. has re-opened for the navigation season its routes on the Niagara Navigation Co.'s steamers between Toronto, Niagara & Queenston, Ont., & on the Rainy River Navigation Co.'s steamers be-

tween Rat Portage, Fort Frances & Mine Centre, Ont.

The Dominion Ex. Co. has placed another large order with the Acton Burrows Co., Toronto, for enamelled iron signs. They will be lettered "Office, Dominion Express Co.," in white letters on blue ground, on both sides, & will be made with a flange so as to project from buildings.

An Havana correspondent writing of advertising in Cuba, says: "The Cuban & Pan-American Ex. Co. fills large space in the Havana Herald telling of its facilities to handle goods in all parts of Cuba. The Southern Ex. Co. advertises that it will 'Pawn and Redeem Goods in All Parts of the World,' & send money by order & guarantee that 'you can get your money back if the order is lost.'"

ENAMELED IRON PLATES

For Doors, etc., in Stations, Steamships, Ferries, Hotels, Offices, etc., carried in Stock for Prompt Delivery.

Any of these Plates can be shipped on the day an order is received.

SMOKING ROOM

Size 23 x 3½ inches. Oblong, fancy ends, white ground, blue letters, lined & tipped:

Agent's Office.	Waiting Room.
Express Office.	General Waiting Room.
Freight Office.	Ladies' Waiting Room.
General Offices.	Men's Waiting Room.
Private Office.	Dining Room.
Ticket Office.	Lunch Room.
Telegraph Office.	Restaurant.
Baggage Room.	Ladies' Toilet.
Smoking Room.	Men's Toilet.
Smoking Prohibited. No Admittance.	
Trespassers Prosecuted.	

NO ADMITTANCE

Size 10 x 2½ inches. Oblong, oval ends, white ground, blue letters, lined & tipped, hollowed:

Bar Room.	Men.
Luggage Room.	Private.
Office.	No Admittance.
Refreshments.	No Road.
Exit.	Boarding House.
Fire Escape.	Private Board.
Lavatory.	Dressmaking.
Ladies.	Fresh to Day.
Women.	Tens Provided.
Gentlemen.	Please Shut the Gate.

Size 14 x 3 inches. Oblong, oval ends, white ground, blue letters, lined and tipped.

No Admittance.

STICK NO BILLS

Size 18 x 3½ inches. Oblong, square ends, white ground, blue letters, lined & tipped.

Furnished Apartments. Stick no Bills.
Please Shut the Door.

PUSH • PULL

Oval, size 2 x 3 inches, white ground, blue letters, tipped, hollowed, lettered Push, Pull, as above.

Oblong, square ends, size 3 x 1½ inches, white ground, blue letters, tipped, lettered Push, Pull, as above.

Perpendicular, square ends, size 12 x 3 inches, white ground, blue letters, lined & tipped, lettered perpendicularly, Push, Pull.

Oblong, square ends, size 12 x 3 inches, white ground, blue letters, lined and tipped, lettered horizontally, Push, Pull.

Oblong, fancy ends, size 3 x 1½ inches, white ground, blue letters, lined and tipped, lettered Push, Pull.

ENAMELED IRON SIGNS.

For Steam & Electric Railways, Steamship, Express, Telegraph, Telephone & Advertising Purposes, of every description, size & color, made to order.

Railway Station Names, Switch Targets, Semaphore Arms, Whistle & Diamond Crossing Signs, Numbers for Railway Bridges, Sections, Mileage Signal Houses, etc.; Street Car Route Signs; Steamship & Ferry Signs; Express, Telegraph & Telephone Office Signs; Agency, Office, Store, Wagon, Cart & Advertising Signs; Street Names & Numbers; Door Numbers.

These signs last practically for ever, they never fade or tarnish, they are ever bright and attractive, they are absolutely impervious to heat or cold, they are the only signs that will withstand the effects of weather in all climates.

For Prices, Illustrated Catalogues, etc., address

THE ACTON BURROWS COMPANY,
29 Melinda Street, - - Toronto, Canada.

STEEL

LaBELLE STEEL CO.

Pittsburgh, Pa.

MANUFACTURERS OF

FINE TOOL STEEL

For Railway Purposes

Track Tools,
Punches, Dies,
Drills, Magnets, etc.

And all purposes where requirements are exacting.

Steel Forgings. Case Hardening Steel.

W. G. BLYTH,

Agent for Canada,

31 Melinda St., - Toronto

Sale One Hundred Millions a year.

R.I.P.A.N.S

THE WONDERFUL MEDICINE

They relieve Distress from Dyspepsia, Indigestion and Too Hearty Eating: are a perfect remedy for Dizziness, Nausea, Drowsiness, Bad Taste in the Mouth, Coated Tongue, Pain in the Side, TORPID LIVER.

They regulate the Bowels.
They Cure Sick Headache.
A Single One Gives Relief.

WANTED

A case of bad health that R.I.P.A.N.S will not benefit. R.I.P.A.N.S, 10 for 5 cents, or 12 packets for 48 cents, may be had of all druggists who are willing to sell a low-priced medicine at a moderate profit. They banish pain and prolong life. One gives relief. Accept no substitute.

Note the word R.I.P.A.N.S on the packet.
Send 5 cents to Rhian Chemical Co., No. 10 Spruce St., New York, for 10 samples and 1,000 testimonials.

The Purchasing Agents' Guide

To the Manufacturers of & Dealers in Steam & Electric Railway, Steamship, Express, Telegraph & Telephone supplies, &c.

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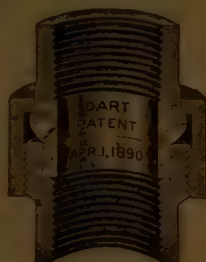
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DOMINION OF CANADA.

The Canadian Northern Railway Company.

ABRIDGED PROSPECTUS.

Issue of £1,191,500 $4\frac{1}{2}$ per cent. 30-Year (Ontario Division) First Mortgage Debenture Bonds of £100 each.

Of which £700,000 are now offered for subscription at £90 per cent. Payable as follows :

£5 per cent. on Application.		
£25	"	on Allotment.
£20	"	1st September, 1900.
£20	"	1st October, 1900.
£20	"	2nd November, 1900.

Or the whole may be paid up in full on allotment, or on the date for payment of any instalment, under discount of $4\frac{1}{2}$ per cent. per annum.

The Bonds are a First Mortgage on the Ontario Division of the Canadian Northern Railway (from Port Arthur to the point of crossing the Rainy River at the Western Boundary of the Province of Ontario, 290 miles) and upon its terminals at Port Arthur, and will be a First Mortgage upon 550,000 acres of the Company's land grant, and, subject to First Mortgage Charges, created or to be created, not exceeding \$10,000 per mile on the various branches of the Ontario division of the Railway, and on the Winnipeg and Saskatchewan divisions and the branches thereof, the Bonds constitute a general charge on its whole undertaking from Port Arthur to the Saskatchewan River. The Bonds are repayable on the 30th June, 1930, and the coupons are payable half-yearly on 30th December and 30th June. Payment in either case will be made either at the Bank of Scotland, London, or at the fixed rate of \$4.86.66 to the £ at the Canadian Bank of Commerce, Toronto, Canada, at holders' option.

THE BANK OF SCOTLAND and THE CANADIAN BANK OF COMMERCE are authorized to receive subscriptions for the above-mentioned Bonds.

The Canadian Northern Railway system connects the Great Lakes at Port Arthur, via Winnipeg, with the Great Saskatchewan River, at a point West of Cedar Lake.

Port Arthur, at the Canadian head of navigation on Lake Superior, from which there is direct communication with the sea for ocean-going vessels, is a great distributing point via the Great Lakes for the products of Manitoba and the North-West Territories. The object of the Canadian Northern Railway is to connect the fertile valley of the Great Saskatchewan River (navigable for many hundreds of miles) with Lake Superior, traversing the grainfields of Manitoba diagonally from the North-west to the South-east boundary of the Province ; the agricultural districts of Rainy Lake, and the celebrated "Iron Range" country of Ontario and Minnesota, which has proved and is proving a great source of wealth to the various American Companies tapping it.

The main line is about 800 miles in length, exclusive of some 120 miles of branches. Of the main line 423 miles (including 36 miles of the Manitoba and North-Western, over which the Company has full running power for fifty years from October, 1896) are ready for traffic, and, it is expected, that 200 miles more will be ready for traffic during this year. The remainder will be completed by the 31st December, 1901, by which date the contractors have undertaken to have the whole line fully completed, equipped and open. The specifications of the Government of Canada, subject to compliance with which the various subsidies have been granted, call for a very complete railway, with low maximum curves and grades, and ample general equipment and terminal facilities. These conditions the contractors have to comply with, and have complied with on the portions of the road already opened, as is shown by the fact that these portions have been passed by the Dominion Government.

The position of the railway renders it absolutely independent of any other railway, and it passes through rich country, which has almost all hitherto been without railway facilities.

BONDED INDEBTEDNESS.

The Company has issued on its Winnipeg and Saskatchewan Divisions 4 per cent. 30-year Gold Bonds, at the rate of \$8,000 per mile, which may be increased to \$10,000 per mile as above mentioned, which Bonds are guaranteed, principal and interest, by the Government of Manitoba.

The present bonded indebtedness of the Company, including the present issue, amounts to \$12,531, say £2,575, per mile (of main line), and the interest thereon to \$539, say £110 15s., per annum per mile.

This low rate of fixed charges results largely from the liberal aid granted to the Company towards construction by the Parliaments of the Dominion of Canada, and the Provinces of Ontario and Manitoba.

INTEREST DURING CONSTRUCTION.

Interest on the present issue of Bonds is guaranteed by the well-known contractors, Messrs. Mackenzie, Mann & Co., of Toronto, Canada, during construction and for one year after the line is opened for traffic.

GENERAL.

Applications should be sent to the Company's Bankers with cheque for application money. Prospectus and Forms of Application may be obtained of the Bankers or the Brokers, or at the Offices as below.

Application will be made to the Committee of the Stock Exchange for a special settlement and an official quotation.

Copies of the Acts of Parliament, the form of Trust Deed and Bond, and all other documents referred to, may be inspected at the offices of the Solicitors for the Bondholders.

Dated London, 12th July, 1900.

Trustees for the Bondholders.

THE NATIONAL TRUST COMPANY, LIMITED, Toronto, Canada.

Directors.

FREDERIC NICHOLLS (President), Toronto.
JAMES GUNN (Vice-President), Toronto.
Z. A. LASH, Toronto.
H. E. HARCOURT-VERNON, Toronto.
J. M. SMITH, Toronto.

Solicitors.

For the Company:—
 { Messrs. BLAKE, LASH & CASSELS, Toronto.
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The Making of a Railway Man.

By Charles S. Lee, General Passenger
Agent Lehigh Valley R.R.

Most persons think that about the easiest job to secure is a railway clerkship. If a man can't do anything else successfully in the world he turns to a railway office. If a father or a guardian has a boy who has made a failure, even of a commercial college, he tries to fix the youth in a railway department. But all these people are very far from right. One of the hardest places I know of to get a start in is a railway office. I shall tell about you that in detail, later. A large number of railway clerks are the sons or relatives of railway men, & they usually seek the department toward which their bent of mind lead them. Some young men are mechanical in taste, some have tendencies toward electrical work, some want to be bookkeepers, & others are active, restless, hustling, ambitious—ready to take a try at the biggest, liveliest kind of business in the world. There is a place for them all in the railway office. It is so varied in its work & so broad in its field that it has room for almost every kind of a man imaginable except the average man who knocks at its door for a job.

There is no room in a railway office, however, for a shirk, an incompetent, the man who works for money, or the man who counts his hours. Such a man may find foothold, & frequently does, but he seldom retains it. I know of few places where a man will find his level quicker than in a railway office. Of late years the growth of the business has been so enormous that it has led to specialization among its employees. The field covers so much territory that one man cannot get over it all, as used to be the case; so he only takes a part of it.

Specialization exists as much among clerks as other classes of railway men, such as brakemen, firemen & telegraphers. The mechanical man naturally gets work in the departments of the superintendent of motive power. Here he studies engines & their manufacture, cars & coaches, rails & switches. He figures on the "strength of materials" & studies to avoid the "perversity of inanimate things." He learns all about the hauling power of a certain quantity of coal & a given amount of steam over known grades with a specified weight in cars & contents. That involves a practical knowledge of mechanics.

When it comes to the adoption or rejection of new devices in machinery it is the trained clerk in the department who does the figuring for the chief of that branch. On our road we have had men begin in the shops as apprentices to fit themselves for these clerkships.

The man with a liking for electricity generally goes into the transportation department or the office of superintendent of telegraphy. In one he has practical experience with the key & sounder, & in the other he deals with the higher branches of the science, construction & maintenance of lines, new methods of transmission of light, heat & power. In the office of the superintendent of the road the clerk attends to the details of the movement of trains, among other things. The present appliances for block signaling require sufficient study to make that branch of work a special training in itself.

#38



GEORGE COLVIN JONES,

Superintendent, Middle Division, Grand Trunk Railway System.

In the general passenger agent's department there are several divisions. The rate department looks after the division of business between the road & its auxiliaries. The ticket department attends to the issuing, handling or charging up of the tickets. Then there is the advertising department, which places the advantages of travel over the line attractively before the public; & besides this, there are the soliciting department, which is engineered from the main office but is conducted chiefly in the field, & the baggage department, which attends to the handling & tracing of baggage.

More clerks are employed in the accounting department than in any other division. Here the railway bookkeeping is done. The comptroller has a large clerical staff to check up the accounts from all the other departments, & the treasurer has a corps of aids equally numerous, who receive, pay out & keep track of the money that comes in.

The freight department employs a great army of clerks, & is organized on the same general lines as the passenger & other departments. The station agent at small places is often the passenger, freight, operating & despatching clerk combined in one man, jointly paid & severally controlled by these departments. Such a man is accountable to almost every officer of the road, but, naturally enough, when it is possible to concentrate so much responsibility in one man, the work is not hard & the duties are largely routine. In all the larger cities the departments have their own representatives working under the immediate supervision of the division heads. Take Buffalo, for example. I have a division passenger agent & a local passenger agent. There are division & local freight agents, a local despatcher, train master, station master, & so on.

So much for the specialization. Now let me say a word about the routine of office work, the grades of pay & the chances for promotion. All offices depend almost wholly upon their clerks. Of course the head of the department is responsible. Directly under the head of the department comes the assistant, or if there is no such officer, the chief clerk. All matters of office work pass through his hands before going to the head. He is the clearing-house association for the other office divisions. Take the passenger department for a general illustration. I have a chief clerk who is, under me, the head of my office. To him come the reports of the heads of the rate & ticket bureaus. The general advertising agent & the general baggage agent report direct to me. All other reports reach me through the chief clerk. I do not mean that I am only to be reached through the chief clerk. I refer to the routine office business, that necessary drudgery that makes up so large a part of every railway man's life. The clerks are all graded, & each grade receives pay according to the value of its services.

The pay of clerks varies according to the road & the city that the clerk works in. Larger salaries are paid in New York, as a rule, than anywhere else, but there are a dozen applicants for each vacancy where there is one in any other town. The expenses of living are greater in the metropolis. Messenger boys get from \$15 a month up to \$25. Clerks get from \$40 to \$100 a month. Chief

clerks receive all the way from \$100 to \$250. I know of one chief clerk in New York who holds a unique position in railway circles, & I have been told that he gets \$10,000 a year, but he is the exception, & the only exception I know of. Station agents get from \$25 to \$250. That is about the range throughout the country, New York included. Pay is about 20% higher in New York than in Philadelphia, & about 25% more than in interior towns. The hours of work are the same as in other lines of business.

Promotion for a railway clerk depends more on the man than anything else. In most offices civil service rules obtain. In my own department I never go outside the office to fill a vacancy if I can help it. If I am forced to, I try the other offices of the road, & if they cannot supply the man I want, I look around for one who has had railway experience. Possibly his name may be on my waiting list. Perhaps he may be suggested to me by one of my men & he may be working elsewhere. In that case I write to his employer, telling him what I am willing to pay for his services & asking whether he objects to my offering the place to him. If he does not object, I make my offer. If this fails I sometimes advertise for a man. I did that not long ago & received a bushel of letters. Some were written on paper from the Holland House & Waldorf-Astoria. Two or three reputable clubs furnished applicants, but the man who got the job came from the Mills Hotel, where the living expenses are less than \$3 a week. If I fill a vacancy by promotion or create a new place, I recruit my office staff by hiring a new office boy & make promotions all along the line wherever it is practicable.

Many clerks never advance much above their original positions. They are the kind of men who work in railway offices merely to draw their pay. They would work as readily in any commercial office. They have no love for their business, no ambition, & yet they wonder why new men are promoted over their heads, & lay it to prejudice, injustice & discrimination. I know some clerks who figure this way:

"I've got to be down at the office at 9. I go to lunch at 12. I get back at 1 & leave at 5. Between hours I can probably get out in the hall for half an hour to read the paper & smoke a cigarette."

And yet this is the very man who will sit down in the evening over a smoke & tell you how the railway business ought to be run; give you some ideas of his own that ignorance on the part of the chief clerk or head of the department has prevented from being adopted, & will inform you seriously that he has been kept down by jealousy from drawing twice as much pay as he gets.

There are certain essentials that all clerks must possess if they wish to hold their jobs for any length of time. But many men overrate these necessary things. For instance, a clerk must be accurate in his figures, grammatical in his expressions, neat & plain in his handwriting and respectful to his superiors. He must obey orders & do the work that is set before him. These are as requisite as the wearing of clothes, but no more so. I know some men who have been clerks for 20 years. They have had all these essentials & have them still. Their manners are perfection, their obedience is beautiful, their handwriting copperplate, & their neatness like unto a Holland housewife's; but they are clerks to-day even as they were when they began. Their trouble was that they stopped at the essentials, which are only the beginning of a man's career.

The clerk who advances is one who works for his office, his chief, his road, as well as for himself. He studies the work of the man directly in his own way of promotion. He not only does all that he is called on to do, but

finds tasks that are outside the routine of his desk. He makes suggestions. He has ideas. He doesn't find ideas by dreaming, gossiping or talking with other clerks when he ought to be at his work, but by studying & by close observation. There is not a clerical place that I know of that does not offer an ambitious, studious, observant man an opportunity for impressing himself so strongly on the management that promotion must come to him. Sometimes it may be slow in his own office, but if he is alert & wide-awake, he can find his chance in some other office. There have been cases in railways following strict civil service rules when capable men have been kept back for years until vacancies in higher positions have occurred. But these men could easily have found better pay on other roads had they cared to make the change.

The interests of a railway are so vast & varied that almost any practical suggestion finds a place in some department. A clerk in the cashier's office may have an idea for increasing speed on engines, a man in the motive power department may devise a new plan of soliciting passenger business, a man in my office may work out a plan for simplifying the keeping of freight accounts. There is room for all these ideas, & the man who makes them is the man who rises, & if he does not neglect the essentials of his daily work while figuring out these problems, he cannot be kept down.

Most men imagine, if they give the matter any thought at all, that a railway clerk is hired solely to take care of the line of work he is set to do. If that were the case there would be no such thing as promotion. A man would have to begin as general superintendent, general freight agent, & superintendent of motive power. But this is not the case. All of these higher places are filled by promotion. There is not a general officer of a railway in this country who has not served some sort of apprenticeship in the service.

Railways are run, primarily, to make money. To make money the public must be served fairly & honestly, & as generously as circumstances permit. Railways cannot exist without business, & the two sources of business are passenger & freight traffic. This business must be solicited in a large measure. The clerk who plans successfully to aid this canvass may make himself an important factor in the management of the road. Let me give you an illustration of the kind of work that is useful in the passenger service. Not long ago the Lehigh Valley Railway Company sent to its passenger & ticket agents throughout the country a circular concerning the proper reading of newspapers for business. In substance it was as follows:

"Watch the local columns of the newspapers. When you see items like these:

"Mr. & Mrs. Smith, of San Francisco, are visiting the Jones' on Riverside Drive."

"Mr. Wilson, who has been very ill with pneumonia, is convalescent."

"The marriage of Mr. Miller & Miss Brown on the 25th promises to be one of the social events of the season."

"I want you to clip these articles or to take note of them, & at the first opportunity call upon Mr. & Mrs. Smith & explain to them the merits of this line on the return trip to their home; they will in nearly every instance be glad of the information, & appreciate your courtesy & enterprise, with the result that business will be secured."

"Before calling upon Mr. Wilson you could ascertain, probably without much trouble, just what place & climate would be most suitable for his convalescence, as it would be folly to urge him to take a long-distance trip when he could not afford to go beyond 100 miles. By studying customers in this way business is increased. Those who travel for pleasure or for health are generally glad to be advised &

helped in this way, & it is wise policy to do so.

"In the case of the bride & groom—this is the one period in life, of all others, when cost is not counted, so that you may feel secure in suggesting all the luxuries as well as comforts obtainable if the wedding journey is made over the road."

"These points seem small in themselves, but if once tried you will be astonished at the results obtained."

This will give you an idea of the chance for advancement in a railway office for a quick-witted, industrious man, who has ambitions & ideas that extend beyond the walls of his own particular office. The railway business is essentially one in which ideas count, & practical suggestions turn quickly into money. My advice to clerks is to use their brains as well as their hands, study the road & its interests, avoid office politics, & be loyal to the head of the department. The chief trusts his employees. He has to do so. If he did not he could not do business. This confidence must be reciprocal if good results are to follow. The clerk who is sure to go up must do his own work as well as it can possibly be done, and at the same time be prepared to do the work of the man who is a step higher up. He must get right down to "brass tacks." He must have a purpose in his work. He must not count hours. The day should be too short for him—not too long. Not long ago an applicant for a stenographer's place called on me. After he had told me his name & experience he said:

"What are the hours?"

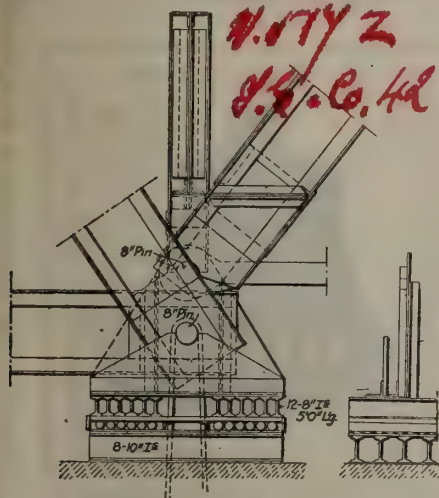
"I think I don't want you at all," was my answer.

Another thing to be remembered is the cultivation of tact, patience & affability. A clerk should treat every one courteously, from the president down to the office boy. He should also always be polite to visitors. No matter who the caller may be, or how foolish his inquiry, the clerk should answer it fully, satisfactorily & politely. Then again, let me advise all clerks not to imagine that they know it all. I began as an office boy in a railway office in Cleveland 29 years ago. I have served as clerk in passenger & freight departments, in the accounting & treasurer's offices, under the general officers & the superintendent, & I know whereof I write. Don't know it all. You can't do it. I learn things every day, & so does every other railway official who studies his calling conscientiously.

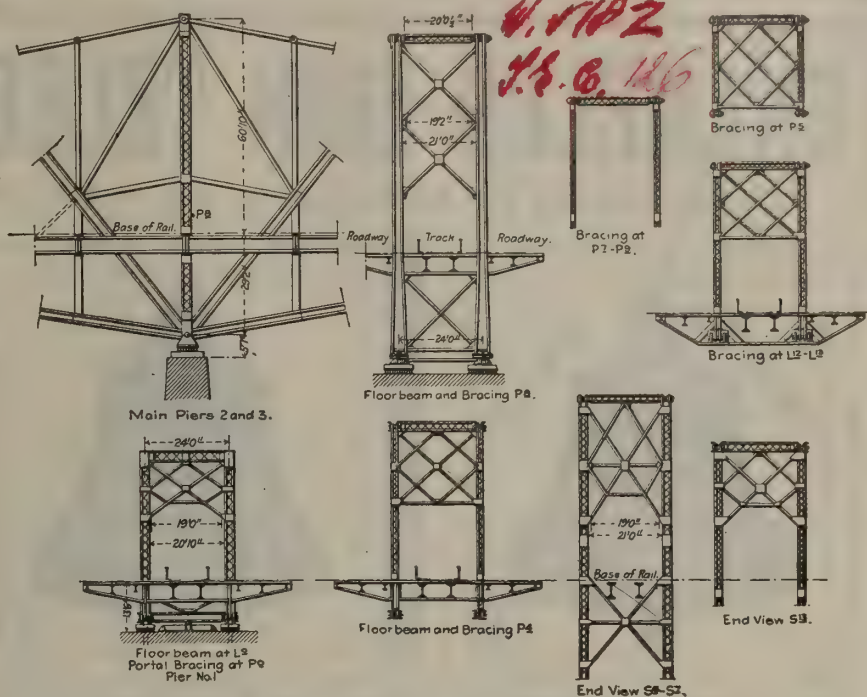
As to habits. The same rules obtain as in all other lines of work. The man who cannot control himself can never control others. A drinking man, a gambler & a man who does not know how to take care of his money & is always in debt is as sure to fail as he is to live.

This brings me up to the chances for entering a railway office as a clerk. It is difficult, unless an applicant is recommended by some one the head of the department knows, or has some peculiar fitness for the work. The best advice I give is to be on hand when a vacancy occurs. Every officer in New York City is loaded up with applications for clerkships. Every office is overrun with applicants who call in person to present their claims for employment. And there are 500 applications for every vacancy. A man of 25, or thereabouts, with no experience in railwaying might walk the streets of New York until he wore his boot soles through looking for a job & not find it. If, on the other hand, he has had experience in some other town & can bring acceptable references he might secure work without trouble. It all depends upon circumstances. Sometimes clerks are taken from brakemen, firemen, conductors & mechanics, if the men have sufficient education & adaptability. Of course the better education a man has the better off he is. A college man stands a better chance than a common school graduate, everything else considered. The man who

has been through a college technical training & understands mechanics has fitted himself for one kind of railway work to begin with. A thorough knowledge of telegraphy, stenography or typewriting are useful & may aid a man in getting a place. The man who is neat in his appearance & gentlemanly in his address is more favorably received than the sloven or the boor. I have known clerks to



PEDESTAL ON MAIN PIER.



DIAGRAMS OF TYPICAL CROSS SECTIONS.

ruin their future altogether by inattention to their dress & by impatience & gruffness in manner.

I cannot tell you precisely what kind of man can find an opening, because that depends so largely upon circumstances over which the head of an office has no control, but I will tell you about one man who got his chance through me several years ago. It will serve as an illustration.

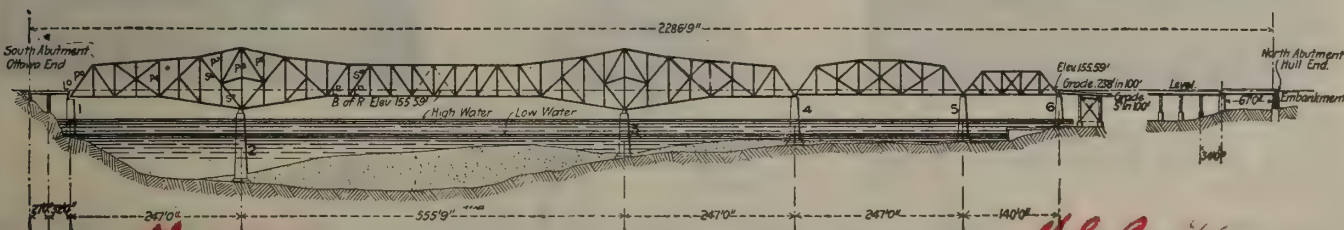
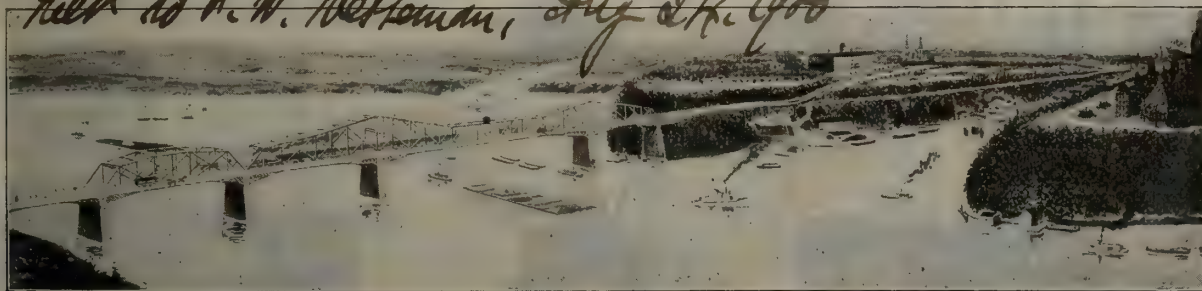
"I am 22 years old," he said. "I have been through college & I want to be a railway

There was no vacancy then, but the next week that young man began work.

The Ottawa-Hull Interprovincial Bridge.

Reports of the progress of work on this bridge, now nearing completion, are given regularly in our Railway Development department & a description of the structure will be of interest. It will connect Ottawa, Ont., with Hull, Que., & will have a total length of 2,286.75 ft. between abutments. It is being

centre span 308.75 ft. The sub-panels are in uniform units of 30 ft., 10½ ins. The greatest depth of truss is 90 ft. centres, & the depth of the centre span is 45 ft. The trusses are in vertical planes 24 ft. apart throughout the whole structure, the outlines of which are shown in the general elevation. The roadway platform is 65 ft. 2 ins. wide, & is designed for a single track to accommodate the Ottawa & Gatineau & the Pontiac-Pacific Junction Ry., 2 electric car tracks, 2 carriageways & 2 sidewalks. On the north approach the



INTERPROVINCIAL BRIDGE, BETWEEN OTTAWA AND HULL.

man. I can work at almost anything. I am willing to work from morning until midnight until I have finished my task. I don't care what you pay me or what you set me to do. All I want is a chance, & if I can't do the work satisfactorily you can let me go. I am ready to begin to-day."

Now I did not have anything in my office, but I went into every department & I said to the heads: "Do you want an A No. 1 man, who is willing to do anything & do it well? If you do, I've got a man for you."

built entirely of mild steel & consists of pin-connected truss spans over the river & a long plate-girder approach viaduct at the north end, besides 2 short girder spans over the steep rocky bank between the end pier & the abutment at the south or Ottawa end.

The most prominent feature of the superstructure is the cantilever portion, which is 1,953.75 ft. long between anchorages, with a clear span of 545 ft. between centre piers. The anchor arms are each 247 ft. long, the channel arms each 123.5 ft., & the suspended

roadway is at a grade of 0.238%, & is a deck platform except at the 60-ft. & 67 ft. street crossings, which are through plate-girder spans. All the main spans are through truss spans with a horizontal roadway platform, 7 ft. 2 ins. above the centres of the horizontal bottom chords & 34 ft. 9 ins. above the tops of the channel piers.

The piers are built of stone masonry down to a point below low water, where they rest on concrete footings carried to bed rock. Piers 4 & 5 were built through ice 30 ins

ENAMELED IRON TELEPHONE SIGNS.

Guaranteed Not to Fade or in any way to Perish from Exposure.



No. 1. Single, 17 x 18 inches. If made double with flange 18½ x 18 inches.



No. 4. Double, 18½ x 18 inches, including flange. If made single, without flange, 17 x 18 inches.



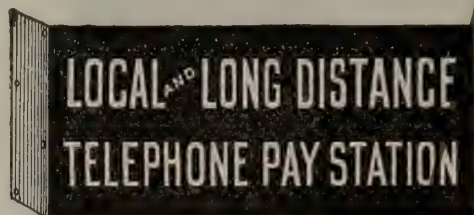
No. 2. Single, 17 x 18 inches. If made double, with flange, 18½ x 18 inches.



No. 5. Double, 19½ x 8 inches, including flange. If made single without flange, 18 x 8 inches.



No. 6. Double, 19½ x 8 inches, including flange.



No. 7. Double, 19½ x 8 inches, including flange. If made single, without flange, 18 x 8 inches.



No. 3. Single, 6½ x 7½ inches.



No. 8. Single, 18 x 8 inches.

These signs can be made in any colors. Blue and white are the most effective and are generally preferred.

Signs with any other design or lettering made to order.

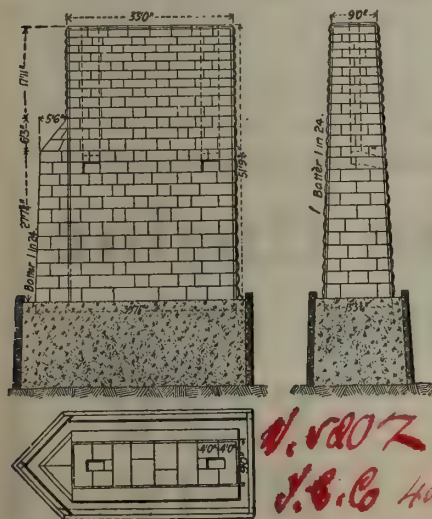
PRICES ON ANY QUANTITIES FURNISHED ON APPLICATION.

The ACTON BURROWS COMPANY, 29 Melinda Street, TORONTO.

Sole Agents for Canada for the Imperial Enamel Co., Birmingham, England.

thick, in shallow water, on rock bottom so level that the cribs were sunk with their lower course of timbers hewed to fit the smooth surface, as shown in the elevation of the south anchor pier. The north anchor pier is taller & has a different type of crib, which was sunk through a sawdust deposit. The stone masonry of all the channel piers corresponds to that in pier 4. Pier 1 was built without any crib, the masonry being laid at low water directly on the blasted rock bottom. Piers 2 & 3 were built in much deeper water, & their concrete footings were constructed inside of very tall cribs which were sunk by dredging through 20 or 30 ft. of sawdust, water-logged timber & other material difficult to remove. In some places between the piers this deposit was 60 ft. thick, but the piers were located so as to penetrate it in the thinnest places. The crib for pier 4 was essentially like that for pier 2 which is shown in plan & cross section. Its walls were solid courses of green 12x12-in. hemlock timber slightly battered up-stream & on the long sides & braced by 4 cross-beams tied into both sides at every 4th course. These side pieces were dovetailed between adjacent wall courses & projected about 3 ft. beyond them on each side to receive the planking of pockets which were filled with stone ballast to sink the crib. The 8 lower courses were each successively offset 4 ins. so as to extend the base of the crib to 29x40 ft., exclusive of the cutwater.

The lower part of the crib was built on shore. After it was launched vertical 3x12-in.



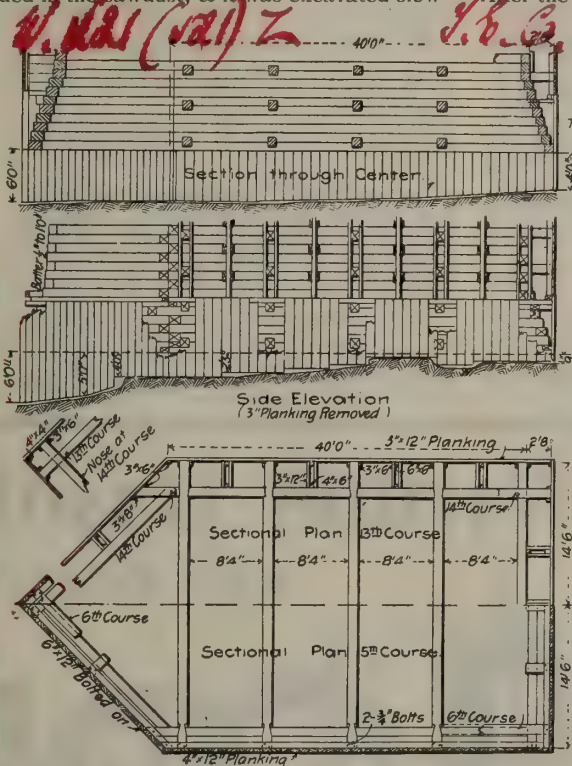
ANCHOR PIER.

plank were spiked on outside, projecting below the lower course to conform to the profile of the bottom previously obtained by soundings. The crib was floating with the lower 4 courses submerged when the vertical sheathing was spiked on, covering the sides to the 6th course. In order to work at the sheathing, a raft was built inside the crib & the edge of the latter was pried up from it with long levers so as to cant the crib over far enough to allow the spiking to be done above the surface of the water. Cribs 2 & 3 were located by the intersection of the bridge axis with transit lines from a fixed point on one shore to different points on the opposite shore.

For sinking the cribs 2 special scows were provided, 80 ft long, 20 ft. wide, 5½ ft. deep, & curved at each end. The bottom & deck of each scow was made of 2-in. calked transverse planks extending across its full width & spiked to the top & bottom chords by 4 longitudinal intermediate trusses. The sides were made of heavy planed timber, butt jointed & bolted to inside vertical posts with cover splices and the joints of the top & bottom

courses. The longitudinal trusses were intersected by 3 solid transverse partitions or bulkheads, which divided the scow into 4 watertight compartments & contributed to its stiffness. The scows were placed parallel to each other & connected by 2 queen-post combination trusses about 10 ft. deep & 50 ft. long, which were bolted firmly across their decks so as to leave a rectangular 30x60 ft. well between them & the scows, in which the crib was suspended by four 2-in. screw rods, by which its descent was regulated. The scows were anchored in a 3-mile current, to the adjacent piers, when these were available, & by Chinese anchors, & the cribs were also anchored by up & downstream diverging lines, which were also attached to Chinese anchors.

As the cribs were lowered, their ballast pockets were filled with broken stone, shoveled in from the decks of the scows, & their sides were built up with additional timber courses until they were landed on the bottom. Slabs as much as 30 ft. long were found bedded in the sawdust, & it was excavated slow-



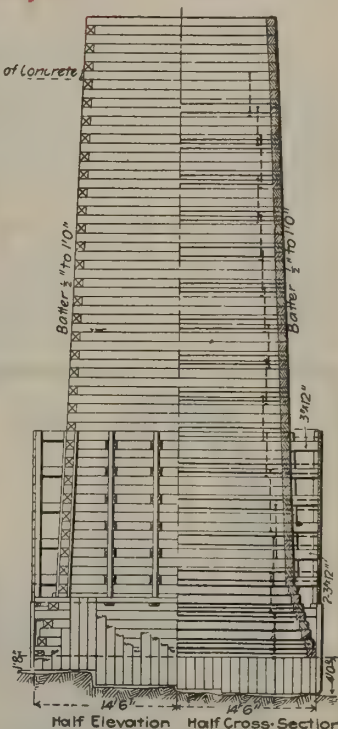
CRIB FOR PIER 2.

ly & with difficulty by a 1½-yard clam-shell dredge bucket, which removed about 150 yds. a day. The material was so stiff that the sides of the excavation stood vertical & the portions which were raised to the surface were tough coherent masses. Planks were laid across the tops of the cribs, & they were loaded with rails & other temporary weights piled on to sink them. At pier 2 the water was 40 ft. deep, & the sawdust was 30 ft. deep, & at pier 3 the sawdust was about 20 ft. deep.

The bottoms of the excavations inside the piers were cleaned by divers, who levelled off the irregularities & guided diamond drills, with which holes 12 ins. deep were made. These were charged with dynamite & the worst irregularities of the rock bottom blasted off. A maximum depth of 72 ft. below low-water level was thus reached. The crib was filled with 1 : 1 3/4 Portland cement concrete made with 2½-in. broken stone. The concrete was made in a horizontal mixing machine & deposited by a 1½-yard bucket with double-flap doors on the bottom, which opened

downward & allowed the concrete to remain on the bottom when the bucket was hoisted. Over 100 bucketfuls were deposited in water 70 ft. deep in one day of 10 hours. At first the concrete mixer was set on the deck of the scow at pier 2, but after about 1,000 yards had been deposited, filling the crib to a depth of about 25 ft., the work on it was stopped by the Dominion Government in Oct., 1898, on account of fear caused by the collapse of the concrete pier of the Cornwall bridge. It was not resumed until April, 1899, when the mixing machine was set up on shore & the concrete mixed with heated sand & water & taken in sleighs across the ice to the crib.

The contractors were also directed to warm the interior of the crib, which was filled with water circulating freely from the river. They accordingly established a 10-h.p. boiler on the deck of the scow & discharged live steam from it into the water. The crib was filled with concrete up to 18 ins. of low-water mark; a tight coffer dam was then built on top of it, pumped out, & the stone masonry laid in it. After the concreting was completed, the Gov-



ernment required a test boring to be made through it to bed rock with a diamond drill. A 3-in. bit was drilled down to within a few feet of the bottom, the hole cased, & a 2-in. hole drilled the remainder of the distance. A core was recovered from the whole depth of the hole, which was in every way satisfactory, showing that the concrete was well set though still green. One diamond-drill hole was bored nearly to the bottom of the concrete & a second one was bored entirely through it & into the bed rock. The core was recovered in short pieces less than 12 ins. long & did not, of course, measure up equivalent to the length of the hole, but did give data of the condition of the mass at all depths. About 4 months were required for the drilling of both holes. To test the efficiency of the method of depositing the concrete, a bucket full of it was lowered to the bottom of the crib, then drawn up to the surface, again lowered a little, dumped in a submerged box, & allowed to set there. When it was examined it was strong & sound, with no evidence of washing or deterioration by the movement through the water.

The principal cross-sections of the cantilever spans are given in diagrams of transverse vertical planes lettered to correspond with the references on the general elevation. The sway bracing consists in general of heavy upper cross struts & multiple intersection diagonal angles, with a light bottom cross strut, or with no lower cross strut at all. Where the roadway is elevated the most above the lower chord, there is transverse diagonal bracing below the floorbeams. At the anchor ends of the cantilevers, the end lower-chord pins are connected by a transverse strut attached at the middle of the floorbeam with short diagonal braces. The under-side of this strut has a projection which slides in a longitudinal seat in a casting bolted to the pier masonry, so as to allow for temperature movements of the truss, & to hold it securely against any lateral displacement. The main lateral system is that in the plane of the floorbeam lower flanges, where each panel between the planes of the trusses is braced by struts made up of 4 angles riveted together back to back, & riveted to connection plates on the bottoms of the floor beams. Besides these, the alternate panels included between the projecting ends of the floor beams outside the trusses & the stringers are X-braced with single angles. There is X-bracing of pairs of angles in every panel of the top chords except in the second panel each side of the main post of the truss. The diagonals are complemented by the top struts of the sway-bracing systems, & by a continuous center longitudinal strut running through every panel.

In order to simplify the supports & save room on the top of the masonry, the ends of the adjacent bottom chords of the cantilever & the 247 ft. river span, are to be supported by single pedestals common to both spans on top of pier 4. The essential features & gen-

eral arrangement are shown by an elevation made from the accepted study for the pedestal. A 4x6 ft. grillage of 10 in. longitudinal I beams, with top & bottom plates, sets on the masonry & receives 2 nests of rollers. Between these there is a space left for the steel loops which engage the end pin of the cantilever span above, & pass down through the pier well to connect with the anchorage platform built into the masonry. Above the rollers is a second grillage made of two sets of 8 in. transverse I beams, with very heavy top & bottom plates, which supports a tall pedestal with two pins. The lower one receives the anchor bars & the cantilever truss members; the upper one is about 2 ft. above it in the same vertical plane, & receives the members of the short truss & the pedestal of the pier floorbeam. At the south end of the cantilever span the pedestal on pier 1 receives only the anchor-arm truss & is anchored by 6 in. vertical eye bars. The grillage is composed of eight 15 in. longitudinal I beams 4½ ft. long, & the pedestal is seated on the rollers without the interposition of an upper grillage.

The bridge is being built under the supervision of G. C. Dunn, acting Chief Engineer of the Ottawa & Gatineau, & of the Pontiac Pacific Junction railways.

RAILWAY FINANCE, MEETINGS, &c.

Atlantic & Lake Superior.—The Sheriff of Bonaventure, Que., gives notice in the Quebec Official Gazette that on July 19, in the case of Bellhouse, Dillon & Co., against the A. & L.S.R., he will sell at auction the portion of the railway running from lot 120, Township of Hamilton, to lot 1188, in the Township of Cox, a distance of about 20 miles, the wharf at New Carlisle, together with stations at Bonaventure & New Carlisle, workshops & other

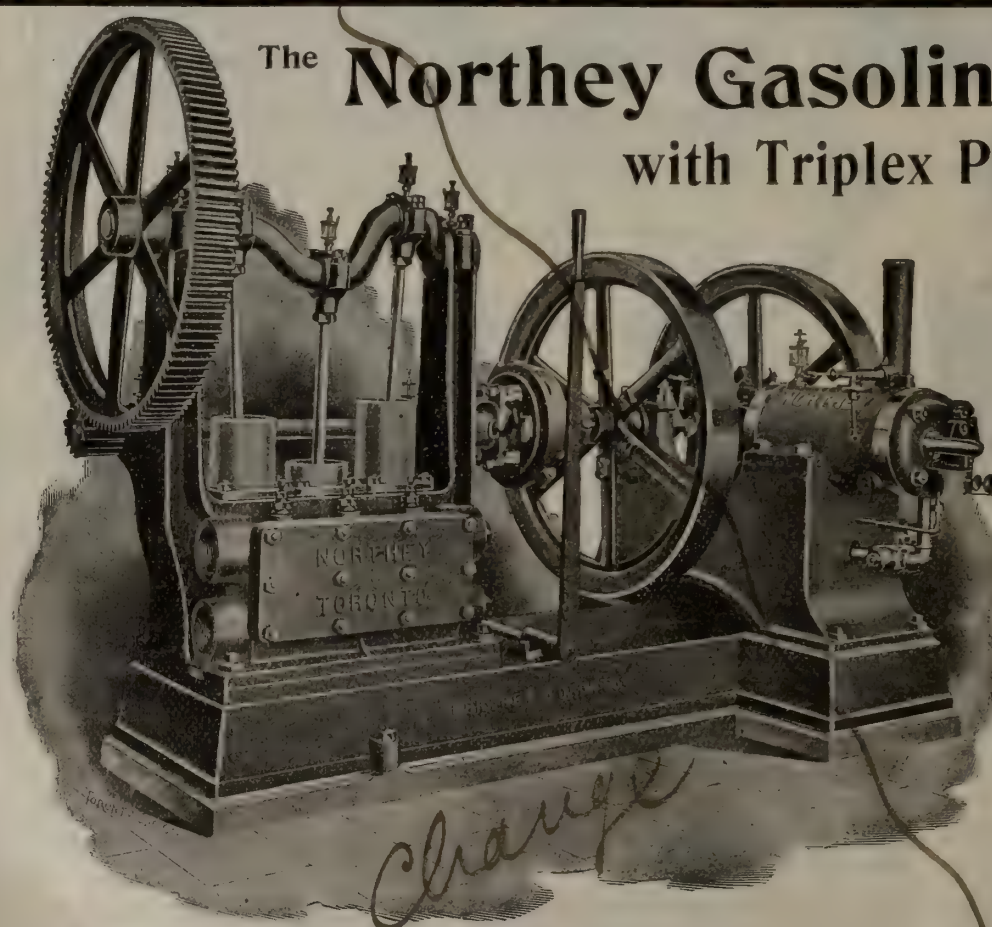
appurtenances. On the same day he will sell at auction the Baie Des Chaleurs Railway running from Metapedia to the Township of Hamilton, a distance of 80 miles, with station-houses, rolling stock, etc., at the instance of A. F. Riddell & T. Watson, curators to the property of H. & G. Macfarlane of Toronto.

Brockville, Westport & Sault Ste. Marie.—The annual meeting was held at Brockville, Ont., July 10. Following is the official list for the current year: President, E. R. Dock, Philadelphia, Pa.; Vice-President, W. H. Cole, Brockville; General Manager, S. Hunt, Cincinnati, Ohio; Superintendent, Treasurer & General Freight Agent, J. Mooney, Brockville; other directors, R. Bowie, G. H. Weatherhead, D. Derbyshire & D. W. Downey, Brockville; W. C. Fredenburg, Westport, Ont.; R. G. Murphy, Elgin, Ont.; R. A. Williams, Philadelphia, Pa.; Secretary, General Passenger Agent & Traffic Auditor, E. A. Geiger, Brockville. Owing to the illness of receiver J. Mooney no report was presented & the meeting adjourned till Aug. 1.

Calgary & Edmonton.—Net earnings for April, \$15,141.68 against \$9,842.89 in April, 1899. Net earnings for May, \$11,310.68 against \$7,913.16 in May, 1899.

It is announced that the net earnings to April 30 last, together with the Dominion Government subsidy for the 6 months ended June 30, will permit of a distribution of £2% on the 1st mortgage bonds in respect of the interest due July 1.

Canada Atlantic Taxation.—In the Trial Court at Toronto, June 28, judgment was given in the suit of this Co. vs. Township of Cambridge, an action tried at Ottawa. The defendant's assessor assessed not only the land occupied by the Co. (the plaintiff), but also the rails, ties & telegraph poles. The



The Northey Gasoline Engine

with Triplex Pump, for

Tank Duty.

We here illustrate one of our Triplex Pumps operated by the Northey Gas and Gasoline Engine for railroad tank pumping. The Northey Engine offers the best example of an easily operated—safe—inexpensive—handy power on the market. The pump used is an improved model of our Triplex Power Pump. This combination gives excellent results, and is built with a view to ensuring an ample margin of strength for heavy, continuous service. We have recently installed two such plants at Coteau Junction, Que.

Booklet and Catalogs on request.

The Northey Co., Limited,
1032 King St. Subway,
TORONTO, ONTARIO.

plaintiff did not receive notice of this assessment. The plaintiff did not appeal to the Court of Revision, by which the assessment was confirmed, but did afterwards appeal to the County Judge, who dismissed it on the ground that an appeal under the circumstances did not lie. It appeared on the face of the assessment roll that the value of the rails, ties & telegraph poles had been added to the value of the land. Held, following *Central Vermont Ry. Co. vs. Township of St. John's*, 14 A.C., 590, that the assessment was illegal, & therefore this action lies. Judgment for plaintiff declaring assessment illegal & restraining the enforcement of payment of its amount. Costs to plaintiff. Costs of defendant Paquette, the collector of taxes for defendant, to be paid by it.

Canadian Pacific.—Land grant 5% bonds of 1881 to the par value of \$249,000 have been drawn for redemption at 110 & interest at the office of the Treasurer of the Co. at Montreal, interest to cease July 30.

The Co. has appealed from a decision of the Montreal city assessors placing a business tax of \$937.30 on the Co.'s work shop on Delorimier Avenue. The Co. objects to the assessment on the ground that it does no business with the public in those shops, that they are practically private shops for its own convenience, & should not be assessed for a business tax, especially as the Co. already pays a business tax on its general operations.

Central Vermont.—A bill was introduced in the Dominion Parliament recently to authorize the Central Vermont Ry. Co. to acquire & operate the Montreal & Province Line Ry., the Stanstead, Shefford & Chambly Ry., & the Montreal & Vermont Junction Ry.

It is rumored that the C.V. Co. is seeking to acquire the Orford Mountain Ry. from Eastman to Kingsbury, Que., & to make connection by a link from Waterloo to Lawrenceville, for which subsidies were voted by the Dominion & Quebec Parliaments.

Dominion Atlantic earnings for 5 months to May 31, \$241,549, against \$212,386 for corresponding period.

A bill was recently introduced in the House of Commons to enable the Yarmouth Steamship Co. to sell its steamers to the D.A.R. Co.

It is rumored that the Halifax & Yarmouth Ry., now under construction, will be amalgamated with the D.A.R.

Great Northern of Canada.—A Dominion proclamation has been issued bringing into effect the provisions of the Act of 1899, to change the name of the G.N. Ry. to the G.N. Ry. of Canada. A provision was inserted in the Act that it should not come into effect until the Co. paid to the town of St. Andrews \$10,000, or, in the alternative, until the Co. acquired the ownership or lease of the railway from Lachute to St. Andrews, & upon acquiring such ownership or lease, that the Co. should become bound to continuously & effectively operate that line. The Co. has paid over the money.

Great Northwest Central.—A duplicate of a mortgage dated May 1, 1900, by the G.N. W.C. Ry. Co., of its railway, franchises, &c., as therein mentioned, to D. McNicoll & I. G. Ogden, trustees, has been deposited in the office of the Secretary of State at Ottawa.

Halifax & Yarmouth.—It is rumored that this line, now under construction, is likely to be amalgamated with the Dominion Atlantic Ry.

Hannaford vs. G.T.R.—Judge Davidson delivered judgment in the Superior Court at Montreal, June 29, dismissing the claim of the plaintiff in the case of E. P. Hannaford, ex-Chief Engineer of the G.T.R., against the Co. for a year's salary, \$6,000. The Co. gave a month's notice of dismissal, & urged the plea that it was sufficient in case of employment by the year. This contention was upheld by the

court. The part of the Co.'s plea charging that the plaintiff had used the time of the Co.'s employees & material was not touched on in the judgment. Mr. Hannaford has given notice of appeal. (April, pg. 103.)

London & Southeastern.—At the annual meeting at London, Ont., June 28, the following were elected:—President, W. J. Reid; Vice-President, T. H. Smallman; Secretary-Treasurer, J. W. Little; other directors, J. Campbell, C. S. Hyman, M. Masuret, H. B. Cronyn, J. Labatt, J. M. Dillon, T. S. Hobbs. This Co. was organized to build stations for the use of the Michigan Central Ry. in London, which the M.C.R. reaches over the London & Port Stanley Ry., leased to the Lake Erie & Detroit River Ry.

Minneapolis, St. Paul & Sault Ste. Marie.—At the recent annual meeting the following were elected:—President, T. Lowry; Vice-President, J. Martin; other directors, J. S. Pillsbury, N. H. Pettit, Sir Wm. Van Horne, W. D. Washburn, W. B. Dean, R. B. Angus, F. H. Peavey, W. H. Bradley, T. G. Shaughnessy; General Manager, E. Pennington; Auditor, C. W. Gardener; Secretary & Treasurer, C. F. Clement. Hereafter the annual meeting will be held on the 3rd Tuesday in September, instead of the 1st Tuesday in June.

Montreal & Atlantic.—A general meeting of shareholders will be held at 24 Osborne St., Montreal, July 23, to appoint a trustee, or trustees, to whom the mortgage will be made for securing the bonds of the Co.

Northern Pacific.—The directors have declared a dividend of 1% against 2% paid in Jan. last. The Railway World points out that the present common shares represent chiefly stock issued against assessments on holders of old N.P. capital stock, the old preferred paying \$10 a share & the common \$15 a share. The preferred shareholders received half of their former holdings in new preferred stock & half in new common. The old common shareholders received share for share in new common. So far as cash payments were concerned, the present common stock, therefore, costs them only \$15 a share, & in paying 2% dividends yearly it is returning more than 13% interest on the investment. The old shares never paid a dividend.

President Mellen announces that the Co. has sold all its remaining lands in Minnesota, & also large tracts in North Dakota & Washington, comprising more than 1,000,000 acres.

Circulars announcing the absorption of the St. Paul & Duluth by the N.P. have been issued by the presidents of the two companies & a deed of transfer has been executed. In the deed the Minnesota law against consolidation of parallel & competing lines is quoted, & the statement made that these roads do not come under that law.

Nova Scotia's Railway Claims.—The long outstanding claim of the province of Nova Scotia against the Dominion for a refund of subsidies paid on account of the construction of the Eastern Extension Ry. from New Glasgow to the Strait of Canso has been submitted to arbitration. An agreement has been signed between the Dominion & Nova Scotia Governments for the appointment of a board of arbiters to consider the claims. Chief Justice Burton, of Ontario, will represent the Dominion, & A. B. Wade, Q.C., of Halifax, the Province of Nova Scotia. The third arbitrator will come from Quebec.

Qu'Appelle, Long Lake & Saskatchewan.—Net loss in operating for April, \$81.09; against net earnings of \$2,371.66 in April, 1899, & net loss in operating in May \$8,279.45, against net loss of \$321.89 in May, 1899.

McCarthy, Osler, Hoskin & Creelman, barristers, Toronto, acting on behalf of the Qu'Appelle, Long Lake & Saskatchewan Ry., the Qu'Appelle, Long Lake & Saskatchewan Land Co., Hon. D. MacInnis, Osler & Ham-

mond, of Toronto, & Hon. W. Pugsley of St. John, N.B., have filed a petition of right in the Exchequer Court as a preliminary to bringing an action against the Government. It is alleged that the railway company constructed a line from Regina to Prince Albert, N.W.T., in consideration of a land grant of 6,400 acres a mile, the stipulation being that the lands should be fairly fit for settlement. The line was completed in 1890, & it is now claimed that out of the reserve set apart by the Government at that time only 224,336 acres are lands fairly fit for settlement, leaving a shortage of 773,894 acres. A claim is now set up for compensation for the deficiency, with interest, since 1890, when the grant was earned. As lands in the northwest are being sold as high as \$5 an acre by the C.P.R. & other companies, the claim, based on that figure, & including interest, would amount to upwards of \$5,000,000.

Quebec & Lake St. John earnings for 4 months to April 30, show an increase of \$25,589 over corresponding period.

Quebec Central net earnings for 5 months to May 31, \$52,052, against \$50,816 for corresponding period.

Chicago & Grand Trunk Finances.

On returning to Montreal, June 15, from England, President C. M. Hays said:—"I went to England in connection with a proposal to float the proposed bond issue of the C. & G.T. As set forth in a circular sent out last Oct. (& published in the *Railway & Shipping World* for Nov., pg. 318) the capital of the C. & G.T.R. Co., as constituted in 1882 & now existing, consisted of \$6,000,000 of 1st mortgage bonds, bearing interest at 6%; \$6,000,000 of 2nd mortgage bonds bearing interest at 5%; & \$6,600,000 of common stock. No fresh capital has been raised since the 2nd mortgage bonds were issued in 1882, but in order to provide capital & other requirements, a floating debt has accumulated of \$1,991,300, for which amount the Co. has issued to the G.T.R. Co. its bonds, secured by a 3rd mortgage on the road. Moreover, as stated in the circular, additional capital was urgently required for the purpose of the doubling of the line, for its proper equipment, & for the reduction of the gradients. The principal railways out of Chicago with which the C. & G.T. competes have expended large sums in the double tracking & improvement of their property, & it is deemed absolutely essential to enable this Co. to maintain its position in competition with other lines, that it should be placed in a condition to fully develop & economically work the traffic which it would then command. This further capital is estimated to amount to about \$4,000,000. The proposal was to have a friendly selling out of the road on the 1st mortgage bonds maturing Jan. 1, 1900, & the creation of \$15,000,000 of 50-year 4% bonds. This would replace the old higher-priced bonds with those at 4%. The proposal had been assented to by all except the 2nd mortgage bondholders, & my mission to England was chiefly to see them. I may say the mission was entirely successful. The work of reorganization will now go on as fast as legal procedure allows. The receivership will be lifted & the road will come under practical control & management of the G.T.R. before Jan. 1 next."

The *Financial Times*, London, England, says:—"Since the announcement that a compromise had been arranged between the G.T.R. & the holders of the C. & G.T. 2nd mortgage bonds considerable curiosity has existed as to how much the G.T.R. had sprung on its original offer. We are now able to give our readers the terms which have been agreed on, & it will be seen that the efforts of the committee have resulted in an increase, roughly estimated, of some 15 to 20% on the

original arrangement. It will be remembered that it was at first proposed that the 2nd mortgage bondholders should receive 75% in 4% mortgage bonds to mature in 50 years, with a partial traffic guarantee only in place of their 5% 2nd mortgage bonds. Under the new arrangement the 2nd bondholders, in addition to 75% in 4% mortgage bonds, will be given 25% in new 4% 2nd mortgage income bonds, together with an absolute guarantee by the G.T.R. of the interest on the new 4% 1st mortgage bonds, which mature in 50 years. One of the leading 2nd mortgage bondholders states the President, who was over here the other day, informed him that it was the intention to spend a good deal of money on the line, & that he felt sure that the Co. would always be able to pay the interest on the new 1st mortgage bonds. This will, of course, improve the security, & there is also a chance for the 2nd mortgage income bonds, which will, perhaps, be worth about 50. We may add that the G.T. has retained the right to redeem the new income bonds at 85% at any time during the first 10 years."

The Canadian Gazette, London, Eng., says:—"We learn authoritatively that the following are the heads of the agreement between the holders of C. & G.T.R. 2nd mortgage bonds & the G.T.R.Co.: To be issued in place of every \$100 of the existing 2nd mortgage bonds, \$75 of 4% 1st mortgage bonds, interest to be unconditionally & absolutely guaranteed by the G.T.C. for 50 years, & \$25 of 2nd mortgage 4% income 50-year bonds, interest contingent on the profits of each year, & with the option to the Co. of redeeming the bonds at any time within 10 years at 85%, & any interest that may be then due. No advances which the G.T. Co. may have at any time to make to the C. & G.T. Co. under the guarantee of the 1st mortgage bond to be placed in front of these 2nd mortgage income bonds, but such advances are to be in every way subordinate to & rank after both 1st & 2nd mortgages as a charge upon the property. Full payment by the C. & G.T. Co. of the 5% interest due on July 1 next on the existing 2nd mortgage bonds."

Glyn, Mills, Currie & Co., London, Eng., announce that they are prepared to pay, on July 2 2% interest on the trustees' certificates in respect of the C. & G.T.R. 1st mortgage bonds, deposited in favour of the reorganization scheme.

E. W. Meddaugh & H. B. Joy, receivers of the C. & G.T.R., issued the following circular June 30:—"The U.S. Court of the Eastern District of Michigan, Southern Division, having under date of June 28, made an order

directing the receivers to disaffirm the leases by the C. & G.T.R. Co. of the Cincinnati, Saginaw & Mackinaw R.R., & to discontinue the operation of said road on and after July 1, notice is given that the receivers will cease to operate or assume any responsibility in connection with said railroad on & after said date.

General Manager Hays, of the G.T.R., issued the following circular July 1:—"The receivers of the C. & G.T.R. Co., acting under order of the U.S. Circuit Court for the Eastern District of Michigan, Southern Division, under date of June 28, disaffirming the lease heretofore existing between the C. & G.T.R. Co. & the Cincinnati, Saginaw & Mackinaw R.R. Co., for the operation of the last-named property, having given notice that they will, on & after July 1, cease the operation of the property, the jurisdiction of the officers of the G.T.R. Co., in their respective positions, is hereby extended over the Cincinnati, Saginaw & Mackinaw R.R. property.

The Cincinnati, Saginaw & Mackinaw R.R. runs from Durand to West Bay City, Mich. It was opened in 1890. The G.T.R. owns a majority (\$825,000) of the capital stock of the Co. The road has been operated under a joint lease, to endure until Jan., 1920, by the G.T.R. Co. & the C. & G.T. Co., the rental being 30% of the gross earnings of the road, the lessees agreeing to advance such further amount up to 25% of the earnings of each from traffic interchanged with this line, as may be necessary to meet the interest of this Co.'s outstanding bonds.

The following official notice has been issued by Trustees Sir C. Rivers Wilson, Jos. Price & Lord Welby:—"We have to announce that after negotiations with holders of 2nd mortgage bonds, whose opposition threatened a protracted delay in carrying through the scheme of reorganization, an arrangement has been entered into with the G.T.R. Co. by which that Co. undertake to add to the traffic guarantee already promised an absolute & unconditional guarantee of interest to be endorsed on each of the new 4% 1st mortgage bonds for \$15,000,000 to be issued under the scheme. In addition to the 75% of 1st mortgage bonds to which the 2nd mortgage bondholders are entitled under the scheme as originally framed, they are now to receive 25% in 4% income bonds, forming a second charge on the undertaking of the new company. The concurrence of nearly all the 2nd mortgage bondholders has now been obtained, & the carrying through of the scheme practically assured. Holders of the few outstanding 2nd mortgage bonds who may wish

to avail themselves of the benefits of the scheme must deposit their bonds with the Amsterdam committee. All information with reference to the terms & conditions of deposit can be obtained from J. C. Loman, Amsterdam. No further deposits of 2nd mortgage bonds can be received by Glyn, Mills, Currie & Co. Arrangements have been made for payment by Glyn, Mills, Currie & Co., on and after July 2, of interest of 2% for the current half-year on the trustees' certificates in respect of the 1st mortgage bonds deposited in favour of the scheme, & holders of 1st mortgage bonds who have not as yet deposited their bonds with Glyn, Mills, Currie & Co. should do so before July 2nd if they wish to secure participation in the benefits to be derived from it."

Duluth, South Shore & Atlantic Ry.

The annual meeting of this subsidiary company of the C.P.R. was held June 7. The following information is extracted from the annual report:—

Main lines owned 517.44; branch lines owned 49.40; trackage rights leased 16.62; mileage operated 583.46. Equipment, locomotives 92; passenger cars 48; freight cars 2,931.

INCOME ACCOUNT.

Gross earnings from operation.....	\$2,407,437.39
Less operating expenses	1,468,896.17
Balance net earnings.....	\$938,541.22
Other income.....	4,937.31
Net income.....	\$943,478.53
Deductions from income	
Interest on bonds.....	\$859,700.00
Miscellaneous interest	16,067.66
Taxes	53,653.43
	\$929,421.09
Balance (profit).....	\$14,057.44

GROSS EARNINGS.

	1899.	1898.
Merchandise freight.....	\$1,224,136.16	\$ 907,157.89
Iron ore freight.....	345,920.08	302,432.84
Passenger.....	686,336.76	489,551.53
Mail.....	51,074.77	52,809.65
Express.....	48,232.32	41,231.41
Miscellaneous	48,737.30	28,624.27
Total.....	\$2,407,437.39	\$1,821,807.59

OPERATING EXPENSES.

	1899.	1898.
Maintenance of way & structures	\$ 302,011.60	\$ 366,628.83
Maintenance of equipment...	189,805.54	136,458.87
Conducting transportation...	814,270.58	655,291.68
General expenses	72,808.45	65,666.41
Total.....	\$1,468,896.17	\$1,224,045.79
Net earnings.....	938,541.22	597,761.80
Percentage of expenses to earnings.....	61.	67.2

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The cost of rebuilding & filling bridges, \$22,943.75, is included in the expenses for 1899.

FREIGHT TRAFFIC.

Tons of through freight carried, earning revenue.....	723,325
Tons of local freight carried, earning revenue.....	1,875,537
Tons of freight carried, earning revenue.....	2,598,862
Mileage of through freight.....	98,599,873
Mileage of local freight.....	37,860,610
Freight mileage, or tons carried one mile.....	136,370,483
Average ton haul for through freight.....	136.190 miles.
Average ton haul for local freight.....	20.187 "
Average ton haul for all freight.....	52.473 "
Average amount received for each ton haul.....	60.020 cents.
Average receipts ton per mile for through freight.....	00.923 "
Average receipts ton per mile for local freight.....	01.718 "
Average receipts ton per mile for all freight.....	01.144 "

PASSENGER TRAFFIC.

Through passengers carried, earning revenue.....	83,403
Local passengers carried, earning revenue.....	390,278
Passengers carried, earning revenue.....	473,681
Passengers carried one mile.....	24,849,035
Average distance carried.....	52.459 miles.
Average amount received from each passenger.....	\$1.42836 "
Average receipts per mile for through passengers.....	02.584 cents.
Average receipts per mile for local passengers.....	02.828 "
Average receipts per passenger per mile for all passengers.....	02.723 "

The table of commodities handled shows a total tonnage of 2,598,862 net tons, the following being the principal items:

	Net tons.	Per cent.
Ores.....	1,436,808	55.25
Logs.....	295,376	11.39
Merchandise.....	125,363	4.83
Flour.....	67,704	2.61
Bituminous coal.....	60,536	2.33
Grain.....	42,384	1.63

The cost of the road & equipment to Dec. 31, 1899, was \$45,149,444.27. During 1899 the construction account was increased \$41,617.80 and the equipment account \$212,880.33.

The following were elected:—President, Gen. S. Thomas, New York; 1st Vice-President, T. G. Shaugnessy, Montreal; 2nd Vice-President & General Manager, W. F. Fitch, Marquette, Mich.; other directors, Sir Wm. Van Horne, Lord Strathcona, R. B. Angus, Montreal; J. W. Sterling, R. Y. Hebden, T. W. Pearsall, J. O. Bloss, G. H. Church, New York.

G.T.R. Indebtedness to Government.

In the Senate, June 28, Mr. Perley enquired if the G.T.R. Co. owes the government of Canada for any sum of money borrowed or otherwise obtained years ago? And if so, what is the amount & when do they expect it to be paid, if ever?

Mr. Scott said—In the early fifties when the G.T.R. was being constructed, the late Province of Canada advanced in aid of the work from time to time moneys to the extent of £3,111,500 sterling. In 1858 the Legislature passed an Act postponing the interest on the loan to the following charges due by the Co.:—1. The payment of interest on preference bonds; 2. After payment of interest upon the loan capital of the Co.; 3. After the payment of a dividend at the rate of 6% per annum on the stock & shares of the Co. As the payment of interest on the provincial loan is postponed to so remote a contingency it can scarcely be called a debt at the present day; though in the public accounts interest is regularly added to the amount of the debenture account due by the G.T.R., which now totals \$25,607,000. It is impossible to say whether the amount will ever be paid. I may add that I entirely approved of this settlement & voted for it in the session of 1858.

Sir Mackenzie Bowell—Have there not been

many bills passed since the dates mentioned in that statement, giving power to the G.T.R. to issue preferential bonds to take precedence of any claim the government might have? If my recollection serves me, there were several cases of that kind.

Mr. Scott—There was one in particular that I know of, the postal bond. The postal bond was issued in that way, but the account as it stands in the Public Accounts is as I have stated.

Mr. Perley—Is the account outlawed?

Mr. Scott—It is 42 years old.

Sir Mackenzie Bowell—A government account cannot be outlawed.

Canada Southern Annual Meeting.

At the annual meeting at St. Thomas, Ont., June 6, the report showed that the Co. has 457.30 miles of 1st track line, 380.04 in Canada, 65.61 in Michigan & 11.65 in Ohio. There are 97.56 miles of 2nd track & 244.24 of sidings, making 799.10 of single track. These figures do not include the 15 miles of the London & Port Stanley Ry., over which the Co.'s trains run between St. Thomas & London. The equipment consists of 151 locomotives & 4,265 cars.

RESOURCES OF THE YEAR 1899.

Net earnings of 1899.....	\$300,574.30
Received from Michigan Central R. R. Co., balance of 1898 account.....	150,666.69
Receipts from other sources.....	2,665.96
Cash & cash Assets, Dec. 31st, 1898.....	8,345.14
	\$462,252.09

DISPOSITION OF RESOURCES.

Dividends paid Feb. 1 and Aug. 1, 1899.....	\$300,000.00
Balance of net earnings, 1899, due from Michigan Central R. R. Co.....	150,393.08
Cash & cash assets Dec. 31, 1899.....	11,858.11
	\$462,252.09

The following were elected directors: W. K. Vanderbilt, F. W. Vanderbilt, C. M. Depew, S. F. Barger, E. A. Wickes, J. E. Brown, C. F. Cox, New York; H. B. Ledyard, Detroit; N. Kingsmill, Toronto.

At the annual meeting of the subsidiary companies, also held at St. Thomas the same day, the following directors were elected:

LEAMINGTON & ST. CLAIR RY.—W. K. Vanderbilt, F. W. Vanderbilt, C. M. Depew, C. F. Cox, E. D. Worcester, New York; N. Kingsmill, Toronto; J. Ross, Montreal.

NIAGARA GRAND ISLAND BRIDGE.—W. K. Vanderbilt, F. W. Vanderbilt, C. M. Depew, S. F. Barger, E. A. Wickes, E. D. Worcester, C. F. Cox, New York; H. B. Ledyard, Detroit; N. Kingsmill, Toronto.

SARNIA, CHATHAM & ERIE RY.—W. K. Vanderbilt, F. W. Vanderbilt, C. M. Depew, C. F. Cox, New York; N. Kingsmill, Toronto.

NIAGARA RIVER BRIDGE.—W. K. Vanderbilt, F. W. Vanderbilt, C. M. Depew, S. F. Barger, E. A. Wickes, E. D. Worcester, C. F. Cox, New York; H. B. Ledyard, Detroit; N. Kingsmill, Toronto.

Grand Trunk Earnings, Expenses, &c.

The following statement of earnings supplied from the Montreal office, includes the G.T. of Canada, & the Detroit, Grand Haven & Milwaukee Rys., the earnings of the Chicago & G.T., which is in the hands of receivers, being omitted:

	1900	1899	Increase	Decrease
Jan.....	\$1,819,988	\$1,606,065	\$213,923	
Feb.....	1,587,923	1,505,549	82,374	
Mar.....	1,830,834	1,798,968	31,866	
April.....	1,813,714	1,637,867	175,847	
May.....	1,872,773	1,750,690	122,083	
June.....	1,917,244	1,777,663	139,581	
	\$10,842,476	\$10,076,802	\$765,674	

The following figures are issued from the London, Eng., office:

GRAND TRUNK RAILWAY

Revenue statement for April, 1900:

	1900	1899	Increase	Decrease
Gross receipts.....	\$357,000	\$321,700	\$35,300	
Working expenses.....	240,000	205,700	34,300	
Net profit.....	\$117,000	\$116,000	\$1,000	

Aggregate Jan. 1 to April 30, 1900:

	1900	1899	Increase	Decrease
Gross receipts.....	\$1,389,200	\$1,288,900	\$100,300	
Working expenses.....	989,900	893,900	96,000	
Net profit.....	\$399,300	\$395,000	\$4,300	

DETROIT, GRAND HAVEN AND MILWAUKEE RY.

Revenue statement for April, 1900:

	1900	1899	Increase	Decrease
Gross receipts.....	\$15,600	\$14,700	\$900	
Working expenses.....	12,700	12,300	400	
Net profit.....	\$2,900	\$2,400	\$500	

Aggregate Jan. 1 to April 30, 1900:

	1900	1899	Increase	Decrease
Gross receipts.....	\$59,800	\$56,400	\$3,400	
Working expenses.....	51,100	49,500	1,600	
Net profit.....	\$8,700	\$6,900	\$1,800	

TRAFFIC RECEIPTS Jan. 1 to May 31:

	1900.	1899.	In-crease.	De-crease.
Grand Trunk.....	\$1,758,869	\$1,633,350	\$125,519	
D., G. H. & M.....	75,080	71,952	3,128	
Total.....	\$1,833,949	\$1,705,302	\$128,647	

Mackenzie & Mann's Yukon Claims.

In the Senate June 7, Sir Mackenzie Bowell enquired:—

1. Has any claim or claims been made by Mackenzie & Mann for compensation, by the Government, for alleged expenditure incurred by them on account of the non-ratification by Parliament of a contract entered into by them & the Government for the construction of a railway from the waters of the Stikine River, in B.C., to the waters of Teslin Lake?

2. Does the Government admit or recognize that any legal or equitable claim exists on the part of Mackenzie & Mann, arising out of the non-ratification of the said contract?

3. What sum has been claimed in payment of such expenditures, disbursements & losses, & what evidence has been laid before the government sustaining such claims?

4. Has the Government taken any action in connection with such claims? If not, do they propose doing so?

Mr. Mills replied—I may say, in reply to the 1st question, that the answer is yes. In answer to the 3rd question, I may say that the amount & interest is \$303,433.24. The evidence produced in support of the claim consists of vouchers duly certified, approved & receipted & in nearly all cases the retired bank cheque is attached. In answer to the 4th question, I may say that no decision has yet been arrived at in respect of this claim, & therefore I am not in a position to answer the 2nd question.

Sir Mackenzie Bowell—Then the matter is still under consideration?

Mr. Mills—The matter is still in the hands of the Government and has not yet been concluded.

The C.P.R. Employees' contribution to the Canadian Patriotic Fund is \$12,033.61, being practically half a day's pay over the whole system. It was contributed as follows:—

Shops & stores, mechanical department.....	\$2,686
Trackmen & extra laborers.....	2,131
Officials & clerks.....	1,717
Stations, freight sheds, etc.....	1,410
Drivers & Firemen.....	1,390
Conductors & crews.....	1,374
Bridges & building.....	681
Telegraph.....	344
Sleeping & dining cars, hotels, river & lake steamers.....	295
Total.....	\$12,033

The employees on lines east of Fort William contributed \$6,829.55; & the employees on lines west of Fort William \$5,204.09.

C.P.R. Earnings & Expenses.

Gross earnings, working expenses, net profits and increases or decreases over 1899, from Jan. 1, 1900:

Earnings.	Expenses.	Net Profits.	Increase or Decrease.
Jan. \$2,152,071.32	\$1,460,501.71	\$ 691,569.61	\$ 74,035.75+
Feb. 1,954,087.59	1,331,355.34	622,732.25	23,030.77+
Mar. 2,294,786.97	1,495,685.73	799,101.24	29,794.33-
Apl. 2,491,194.47	1,464,126.85	1,027,067.62	106,764.13+
May 2,662,897.81	1,583,227.32	1,079,670.49	46,911.88+
\$11,555,038.16	\$7,334,896.95	\$4,220,141.21	\$220,948.20+
+ Increase.	- Decrease.		

Approximate earnings for June, \$2,552,000, against \$2,352,000 in June, 1899; increase, \$200,000. Mileage increased to 7,438 miles.

SUBSIDIARY LINES.

MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE.—Approximate earnings for June, \$393,178; increase over June, 1899, \$7,548.

Net earnings for Mar., \$242,982, against \$146,972 in Mar., 1899. Net earnings 3 months to Mar. 31, \$524,929, against \$260,308 for corresponding period.

DULUTH, SOUTH SHORE & ATLANTIC.—Approximate earnings for June, \$233,966; increase over June, 1899, \$20,861.

Net earnings for April, \$84,711, against \$61,388 for April, 1899.

MINERAL RANGE, HANCOCK & CALUMET.—Approximate earnings for June, \$53,804; increase over June, 1899, \$17,571.

Canadian Pacific Railway Land Sales.

	Acres.		Amount.	
	1900	1899	1900	1899
Jan.	31,486	14,718	\$ 100,857.85	\$ 46,411.35
Feb.	23,613	13,747	75,771.19	43,371.69
Mar.	31,183	24,045	97,777.79	75,460.76
April	58,457	36,626	181,775.78	116,835.84
May	66,057	26,584	214,851.09	88,928.98
June	57,831	54,225	188,779.64	169,192.74
	268,627	169,945	\$859,813.34	\$540,201.36

A. O. Norton's Canadian Plant, at Coaticook, Que., is working full time on export orders for ball bearing lifting jacks, among which are shipments to South Africa, Siam, Mexico, San Salvador, Sweden and South Australia.

F. E. Came, Montreal, has been appointed general sales agent for Canada for the Bell Rock Mills, & will supply the trade with all lines of linen & cotton fire hose, & cotton electric tubing, of which a stock is carried in Montreal.

Railway Equipment Notes.

The G.T.R. is said to be in the market for 500 coal cars of 80,000 lbs. capacity.

The Great Northern of Canada is reported to have ordered 150 box and 50 platform cars.

The Toronto, Hamilton & Buffalo, is about to add to its passenger equipment 10 coaches for excursion business.

The narrow gauge sleeping cars, which are being placed on the White Pass & Yukon, are 40 ft. long & weigh 15 tons.

The Westinghouse Air Brake Co. has declared a dividend of 7½%, making the total dividends 32½% for the fiscal year.

The Minneapolis, St. Paul & Sault Ste. Marie Ry. recently placed an order with the Baldwin Locomotive Works for one locomotive.

The Ottawa & New York has two trains turned out from its shops on the U.S. side some months ago that will be put in service as soon as the bridge at Cornwall is completed.

The C.P.R. Co. has built at its Montreal works 2 locomotives, nos. 222 & 223, for the Imperial Limited service between Fort William & Ignace. They have 69 in. driving wheels.

The Intercolonial received during June three 60,000 lbs. box-cars & 28 platform cars from Rhodes, Curry & Co., Amherst, N.S. Seventy-five 60,000 lbs. box-cars were also received.

The Minister of Railways recently announced his decision to make important additions to the Intercolonial equipment, including powerful locomotives & up-to-date passenger & freight cars.

Rhodes, Curry & Co., Amherst, N.S., have about completed their new car-wheel works, which will have a capacity of 100 wheels a day. They are being equipped with the most up-to-date foundry plant.

Since Feb. 1 the G.T.R. has built at its shops 15 1st-class passenger coaches, 2 baggage cars, 135 box cars, & 300 coal cars, both of the latter being of 60,000 lbs. capacity. Automatic couplers & air brakes have been put on 3,123 freight cars.

The Richmond Locomotive & Machine Works is exhibiting a 16 x 24 10-wheeled passenger locomotive at the Paris Exposition. The engine is 1 of 10 ordered by the Finland State Ry. Nine of the engines have been delivered, & the one in question will be shipped to Finland after the close of the Exposition.

The staffs of the divisional workshops of the G.T.R. are hard at work equipping with air-brakes the whole of the cars in the service not already so equipped, to comply with the order issued by the U.S. Inter-State Commerce Commission that all cars running in U.S. territory must, after Aug. 1, be provided with air-brakes.

The Baldwin Locomotive Works has on its books for 1900 orders for 1,200 locomotives. Out of these about 800 are for American roads, & the remaining 400 for foreign lines. The growing favor of the compound system for locomotives is shown by the fact that 450 of the 1,200 are to be supplied with both compound cylinders.

The American Railway Association's Committee on Safety Appliances recently reported that on Jan. 1, 1900, out of 1,283,679 freight cars in service, 1,191,189 (92.8%) were fitted with automatic couplers, & 18,180 (63.7%) were fitted with air-brakes, also that out of 34,319 engines reported, 33,435 (97.4%) were equipped with power brakes. On Jan. 1, 1900, there were reported 102,485 freight cars under construction, all of which were to be fitted with automatic couplers & air-brakes.

The Lehigh Valley has placed 6 handsome new coaches on the Black Diamond Express from the Pullman Company. Each car has a large smoking-room & a luxurious ladies' retiring-room in addition to the usual saloons for each. They each seat 69 people, weigh 50 tons, are 70 ft. long & a trifle over 10 ft. wide. The roof is in the Empire style of construction & is made of three-ply whitewood. The cars have hot-water heaters, & Westinghouse high-speed brakes with a power equal to 90% of weight of car.

The G.T.R. Montreal shops have just completed another lot of 5 of the 800 series of passenger coaches with many improvements over the last ones. These are constructed in such a manner that every detail has been observed with a view of comfort & ease without regard to cost. The appointments of the interior show the artistic taste which has been observed in the way of decorations, blending of colors & the finish & carving of the woodwork. These cars have full width vestibules. The cars are 68 feet long, with a seating capacity of 68 passengers, the body of the car holding 54 & the smoking-room 14. Two of these are running on the eastbound & westbound night express trains between Montreal & Portland, & the other three have been placed on other divisions of the system.

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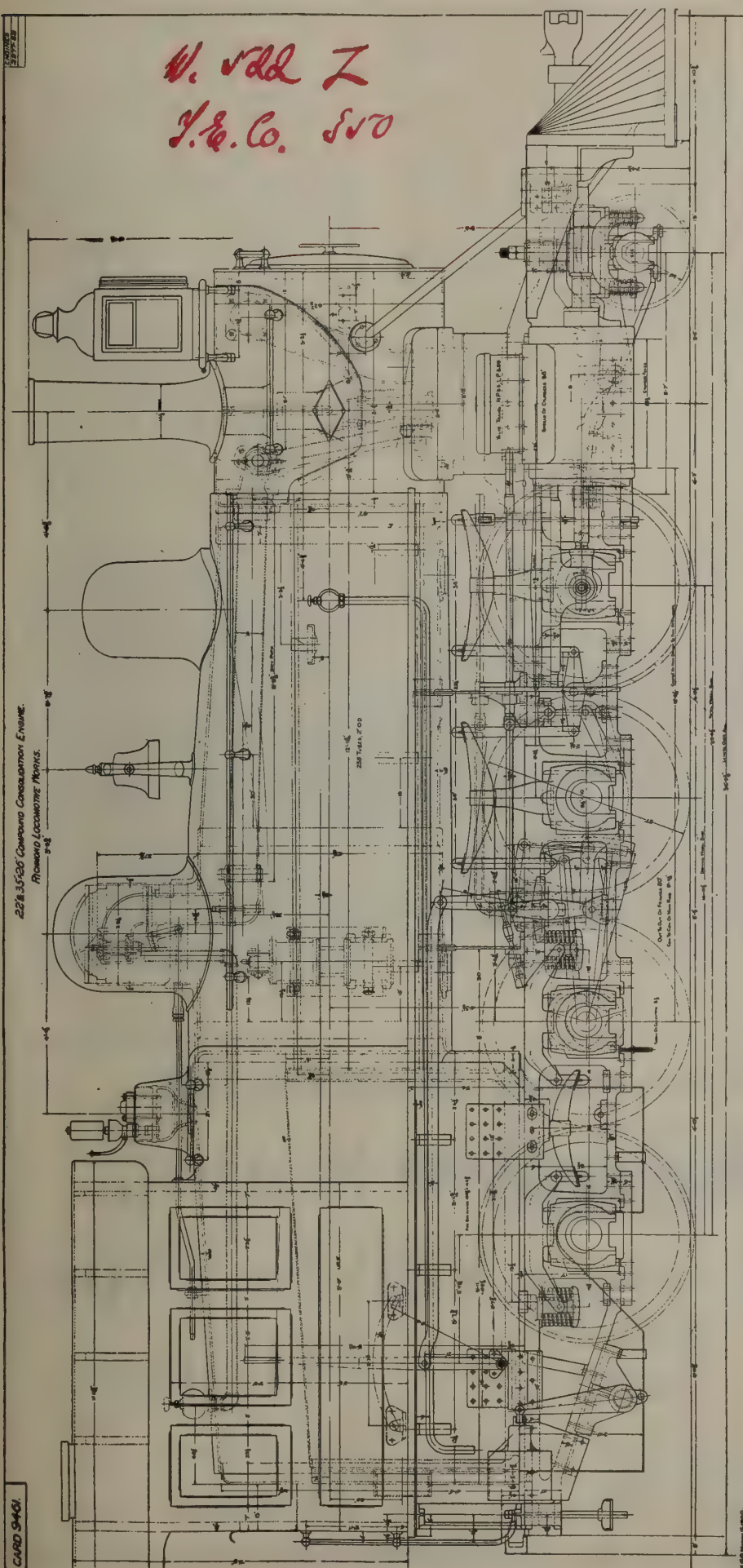
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ELEVATION OF RICHMOND COMPOUND CONSOLIDATION LOCOMOTIVES FOR CANADIAN PACIFIC RAILWAY.

Locomotive builders report a falling-off in the number & character of the orders placed for motive power by the various railways. A member of the Baldwin Locomotive Works attributed this not to the fact that the needs of the various railways had been supplied, but rather to the fact that, owing to the recent steady decline in the price of materials entering into locomotive construction, railroad managers are withholding their orders until prices have become more settled, & in the expectation of securing engines at lower figures. The prices of metals entering into locomotive construction are said to have declined recently from 5 to 8%. The same percentage applies to cars. Freight cars can be bought from \$50 to \$75 cheaper now than they could some weeks ago.—Railway World.

A number of G. T. R. passenger locomotives are to be equipped with electric headlights. One of the large type of locomotives recently constructed at the Co.'s Montreal works, & which is now at work in the Montreal & Portland night passenger service, has been equipped with electric lighting appliances, consisting of a powerful electric-lighted head-lamp & a number of incandescent lamps which have been placed in the cab for the purpose of lighting the steam & air pressure & water gauges. The classification train signal lamps are also electrically lighted, & a number of other lamps are situated over the machinery of the locomotive for the purpose of better inspection. On account of the brilliancy of the headlight, the engineer can very readily distinguish objects within the right of way for over half a mile distant in advance of the train.

The Baldwin Locomotive Works has issued a daintily-got-up pamphlet containing illustrated descriptions of the locomotives it is exhibiting at the Paris Exposition. The introduction contains some interesting facts about the works. They were established by M. W. Baldwin, who constructed in 1831-31, his first locomotive, the "Old Ironsides." Up to Jan. 1, 1900, the works had built upwards of 17,350 locomotives, the greater number for railways in the U.S., the remainder for export to most of the countries of the world. The annual capacity of the works is 1,000 locomotives. The greatest production was reached in 1890 when exclusive of extra parts for repairs, equal to nearly 100 locomotives, 946 locomotives were completed. In 1899, 901 locomotives were completed, exclusive of extra parts. The organization of the works based upon an annual capacity of 1,000 locomotives, equal to $3\frac{1}{3}$ locomotives a day, is as follows:—

No. of men employed.....	8,000
Hours of labor per man per day.....	10
Principal departments run continuously, hours per day.....	23
Horse-power employed.....	6,000
No. of buildings comprised in works.....	29
Acres comprised in works.....	16
No. of dynamos for furnishing power 8, h.p.....	1,600
No. of dynamos for lighting, 6 arc, incandescent.....	4
No. electric lamps in service, incandescent 3,000, arc.....	300
Electric motors employed for power transmission, aggregate, h.p.....	3,000
Consumption of coal, in net tons, per week, approximately.....	1,200
Consumption of iron, in net tons, per week, approximately.....	2,000
Consumption of other materials, in net tons, per day, approximately.....	100

The McCloud River R.R. has had built by the Baldwin Locomotive Works, a compound duplex locomotive, an illustration of which is given on page 207. This line is 18 miles long from Upton, on the Southern Pacific, to McCloud, Cal., with steep grades, & the builders guarantee this locomotive to haul 125 tons of 2,000 lbs. up a 7% grade. The gauge is 4 ft. 8½ in. There are essentially two engines placed end to end, the cab of one extending over that of the other. The fuel, which is wood, is carried in a rack on the fireman's side of each engine, while the water is in tanks

over the boilers, each tank holding 1,200 galls. Following are the general dimensions :	
Cylinders (two sets)—diam. (high pressure).....	11½ ins.
" (low pressure).....	19 ins.
" stroke.....	20 ins.
" valve.....	Balanced piston
Boiler—diameter.....	46 ins.
" thickness of sheets.....	½ in.
" working pressure.....	200 lbs.
" fuel.....	Wood
Fire-box—material.....	Steel
" length.....	53 11-16 ins.
" width.....	34 3-8 ins.
" depth.....	59 ins.
" thickness of sheets, sides.....	5-16 in.
" back.....	5-16 in.
" crown.....	3-8 in.
" tube.....	½ in.
Tubes—number.....	136
" diameter.....	2 ins.
" length.....	12 ft. 9 ins.
Heating Surface—fire-boxes.....	148
" tubes.....	1,804
" total.....	1,952
" grate area.....	26
Driving Wheels—diameter outside.....	40 ins.
" diameter of center.....	34 ins.
" journals.....	6½ x 8 ins.
Wheel Base—rigid.....	9 ft. 9 ins.
" total.....	38 ft. 4 ins.
Weight—on drivers.....	161,400
" total.....	161,400
Tank capacity, aggregate.....	2,400 galls.

On pages 203 & 205 are an illustration & an elevation of C.P.R. locomotive no. 767, one of 12 compound consolidations which are being delivered to the Co. at Mattawamkeag, Me., & Newport, Vt., by the Richmond Locomotive & Machine Works, of Richmond, Va. Following are the general dimensions :

Gauge.....	4 ft. 8½ ins.
Fuel.....	Coal
Weight on drivers.....	132,500 lbs.
" in working order.....	150,500 lbs.
Wheel base—Driving.....	14 ft. 10½ ins.
" Total eng. & tender.....	49 ft. 6½ ins.
Total length of engine & tender.....	60 ft. 9 ins.

CYLINDERS.

Diameter.....	22 ins. h.p. & 35 l.p.
Piston stroke.....	26 ins.
" packing.....	Cast iron
" rod diam. 4 extended material.....	Steel
Steam ports.....	H.p. 1½ x 20 ins., l.p. 2 3-8 x 23 ins.
Exhaust ports.....	H.p. 3 x 20 ins., l.p. 3 x 23 ins.
Bridge width.....	H.p. 1½ ins., l.p. 1½ ins.

SLIDE VALVE.

Style balance.....	Double ported
Greatest travel.....	H.p. 5½ ins., l.p. 6 ins.
Lap—outside.....	H.p. 1 in., l.p. 7-8 in.
" Inside.....	Clearance H.p. ¼ in., l.p. ¼ in.
Lead in full gear.....	1-32 in.

WHEELS.

Driving—lumber.....	8 ins.
" diameter.....	57 ins.
" centres, material.....	C. steel
" box.....	C. iron
" axle journal.....	8½ x 10 ins.
Crank-pin—main, steel.....	6½ x 6 ins.
" side rods, steel.....	7½ x 4 3-16 ins., 5 x 4 1-8 ins.
" & 4½ x 3 ins.	

Eng. truck—style.....	Cent. bearing swing motion
" wheels—no. 2, diam.....	30 ins.
" centres.....	D.p. chilled cast iron
" axle, steel, journals.....	5 x 8 ins.

BOILER.

Type "Belpaire".....	Sloping back, wide fire-box
Working pressure.....	200
Outside diam, 1st course.....	62
Thickness of plates—in barrel.....	11-16 & 5-8
" roof & sides.....	5-8
Seams—circumferential.....	Double riveted
horizontal.....	sextuple riveted
Fire-box—length.....	109 7-8 ins.
" width.....	42 5-8 ins.
" depth.....	Front 64 ins., back 57 ins.
" material.....	Steel
" plates.....	Sides 5-16 in., back 3-8 in.
" Crown 3-8 in., tube ½ in.	
" water space.....	Front 4 ins., side 3 ins., back 3 ins.
" crown stays.....	1 1-8 ins.
" stay bolts (cross stays 1 3-8).....	1 in.
Tubes—material, iron.....	Length, 12 ft. 11 11-16 ins.
" number 255, diam. 2, thickness.....	11 b.w.g.
Heating Surface tubes.....	1,845 sq. ft.
" fire-box.....	151 sq. ft.
" total.....	1,996 sq. ft.
Grate—style.....	C. iron rocking finger
" area.....	32.7 in.
Exhaust Pipe—style.....	Single
" nozzle.....	4½ & 5 ins.
Smoke Stack—inside diam.....	Smallest 14½ ins.
" top above rail.....	15 ft. 2 ins.

TENDER.

Weight, empty.....	46,000 lbs.
Frame.....	Iron
Wheels—number 8.....	Diam. 33 ins., o.p. chilled
" journals.....	5 x 9 ins.
Wheel base.....	16 ft. 2½ ins.
Tank capacity—water.....	4,000 Imperial galls.
" coal.....	8 tons

Stream Diversion by G.T.R.—In the Trial Court at Toronto, June 11, Judge Street gave judgment in Town of Peterboro' vs. G.T.R., which was tried without a jury at Peterboro'. The action was for a declaration that the defendant is liable to rebuild or repair a certain bridge in the town upon Smith st., where a small stream (as diverted by the Midland Ry. Co., to whose liabilities the defendant has succeeded) crosses the street, & for a mandamus to compel the defendant to rebuild it & to make good & restore the highway to its former state. Held, that the G.T.R. Co. had acted within its rights in diverting the stream, & if the municipality had sustained damage by reason of the exercise of those rights, they must proceed under the Railway Act to obtain compensation. Should the defendant refuse to proceed the plaintiff would have a remedy by mandamus upon motion. Such a mandamus should not be granted in the present action, a motion being the proper course. Action dismissed with costs.

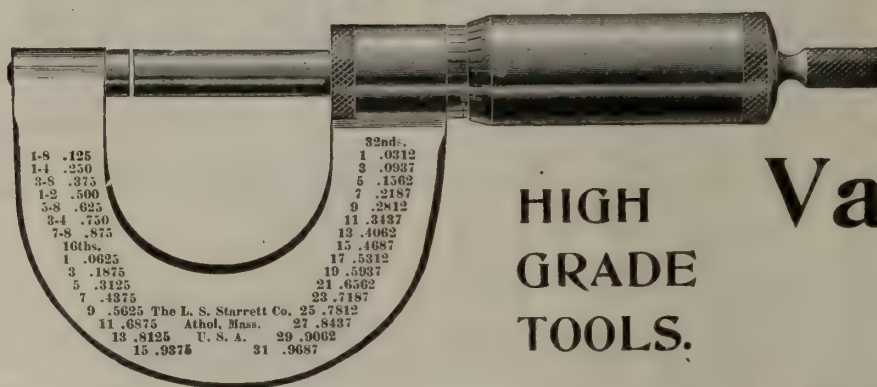
The Newfoundland Railway, Etc.

A correspondent writes from St. John's, Nfld., under date of June 14: One of the most comprehensive & audacious projects of present-day finance is that just launched by R. G. Reid, of Newfoundland, for the exploitation of this ancient colony. It involves the transfer of his varied holdings to a limited liability company, capitalized at \$25,000,000, & the development of his millions of acres of arable, mineral & forest lands, as well as the operation of his railways, steamers & kindred enterprises. At this juncture, when the sentiment in favor of the fusion of the several scattered groups of British colonies is being accentuated by the lessons of loyalty taught by the war, & concreted by the Australian Federation Bill, & when the movement for the inclusion of Newfoundland in the Dominion is again agitating the politicians & people of the two countries, it should be of more than passing interest to the Canadian public to become familiarized with the details of this Napoleonic undertaking.

The properties, franchises & concessions which Mr. Reid is enabled to put on the money market as the basis of his far-reaching schemes for development are as follows: The Island railway, 633 miles of main & branch lines, built by the colony at a cost of about \$11,000,000, & sold to Mr. Reid 3 years ago for \$1,000,000 in cash. About 6,000,000 acres of land throughout the island, granted to Mr. Reid as an equivalent for his operation of the road for 50 years. The monopoly of mail carriage by steamers on the great bays of the island for 30 years at \$135,000 a year, to fill which contract Mr. Reid has just completed a fleet of 8 steamers at a cost of another \$1,000,000. The dry dock at St. John's, built by the colony at a cost of \$560,000 & sold to Mr. Reid at \$325,000, to be used as a deep-water terminal for the railway system, in addition to its legitimate purpose as a convenience for repairing damaged ships. The Government system of telegraphs, constructed by the colony at a cost of \$280,000, & sold to Mr. Reid for \$125,000, he using them as accessories to the efficient operation of the railway & steamer services. The St. John's Street Ry., with franchises to supply light & power, the combined plant, with its possibilities, being estimated now to be worth fully \$1,000,000.

Mr. Reid, who, as a railway contractor, is well known throughout Canada as having built some of the heaviest sections of the west-

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ern divisions of the C.P.R., & who has recently been elected a director of the Bank of Montreal, of which city he is a permanent resident, first became a figure in our island politics in 1890. The Government wanted a capitalist to undertake the building of its railway which had collapsed completely after having been laid only 57 miles. Mr. Reid grappled with the task, offering to take the colony's 3½% bonds as payment, instead of cash, \$15,600 a mile being the figure stated. In 1892 he contracted to complete the road across the island, as the first contract went only part way, the terms being the same as in the first instance. In 1893 the Government, having by this time become convinced that the road, which ran through an untrodden wilderness, would be a costly one to operate when on its completion it reverted to the colony, arranged with Mr. Reid to assume its operation for 10 years for a land grant of 5,000 acres to every mile, about 3,000,000 in all. It looked a mad undertaking on his part. The interior of the island had never been opened up until Mr. Reid started his line through it; there was not a habitation for hundreds of miles, & for a quarter-century with but the fishing community peopling the coast line to draw upon for settlers inland, it would to all seeming appear as if there would be no possi-

period when he failed to efficiently operate it. The island was in deep financial distress at the time, & it was declared that without this million dollars it must default, so this argument proved a potent one in influencing the vote for the measure in the Legislature. The dock was sold to Mr. Reid because it was eminently suited to round off his enterprise, & because every year the colony sank \$10,000 to \$15,000 in its up-keep. Similar reasons explained the transfer of the telegraphs. The coast steam service then in existence, one steamer going north & another west, with large stretches of seaboard untouched, was just then expiring, & it was felt that the time was opportune to secure a much improved one—a boat in every bay, on every lengthy coast, one to Labrador & one to Cape Breton, all to connect with the railway & form a perfect chain of communication, bringing every section of the island in touch with every other, & providing the essential facilities of cheap through freight & passage rates.

This was the "Reid deal" in its main features, the minor details being unimportant. On its behalf there was to be urged that it represented such a huge contract & of such diverse phases for Mr. Reid that it practically bound him to the colony for the remainder of his life. His interests were made identical

mination & ingenuity that the whole island was inflamed against Mr. Reid, & an agitation of unusual violence was promoted for the disallowance of the measure, which had passed the Assembly by a vote of 28 to 8 (five Liberals withdrawing from their party to support it), & in the Council by a vote of 14 to 1. The disallowance movement failed of effect, but the outburst did not spend itself there, & as time passed the bitterness increased until the undercurrents of popular passion & prejudice brought about the downfall of the Conservative Ministry in March last, after an existence of two years.

To it succeeded, without the ordeal of an election, the Liberal party again, Hon. R. Bond replacing Sir Wm. Whiteway as Premier, the latter retiring owing to increasing years. When they took office Mr. Reid was in England, arranging the financial details of this project, & had the Conservative Ministry, under Premier Winter, continued to hold office for another few months, there is little doubt that Mr. Reid would have been enabled to secure the necessary administrative sanction for this transfer of responsibility. In the final clauses of the "deal" it was provided that the contract was not to be transferred or sub-let without the sanction of the Government of the day, which approval could be expressed



RICHMOND CONSOLIDATION LOCOMOTIVE FOR CANADIAN PACIFIC RAILWAY.

bility of the road developing enough traffic to cover the expenses of running it, not to speak of earning sufficient to pay a dividend to the courageous investor who had taken it in hand.

But Mr. Reid's plans were then only in embryo. In 1897 he secured the consent of the Liberal party, which had given him these concessions, to a further enlargement of his operating contract, though the unpopularity of the large grants given to him already made it necessary to keep this secret until after the election. The contest, however, resulted disastrously to the Liberals, the Conservative party carrying 23 seats against 13. The new Ministry proved even more amenable to Reid influences, & agreed to the famous "Reid deal," which has since acquired such a world-wide publicity. By this arrangement Mr. Reid undertook to operate for 50 years the colony's entire railway system—both what he had built & the branches already in existence—for a grant of another 2,500 acres a mile, his grand total of lands aggregating about 6,000,000 acres, or, say, 7,000 square miles, making him easily the largest landowner on earth. He also agreed to put down at once \$1,000,000 for the reversion of the ownership of the road, at the end of the half-century the money to become forfeit & the line to revert back to the colony at any time during that

with ours; he could not remove from the island the railway, the land, the dock, the telegraphs, etc. To develop them he had to spend money, & if he profited thereby the colony & its people were also sharers in the benefits, while if he lost we were none the worse, but, on the contrary, had escaped the heavy loss on operation for many years, as well as that for preliminary development work. Competent experts, basing their calculations on the I.C.R. statistics for 20 years back, estimated an annual loss to the colony for the operation of the railway of fully \$250,000, a drain which it could not stand for more than a year or two without being plunged into hopeless bankruptcy. For the contract it might also be claimed that under every phase of it there was a saving or like benefit to the colony, & that its peculiar circumstances ensured that Mr. Reid would have to spend within the island every dollar he could get, so as to make his investment remunerative.

It was contended by the enemies of the contract that the country had been "sold" to Mr. Reid, that all our valuable assets had been "made away with," & that the future of the island lay with Mr. Reid alone to make or mar. The arguments were mainly the sentimental ones that appeal to an excitable electorate, & they were used with such deter-

either by an order-in-council or another act of the Legislature. The change of Government worked disastrously to Mr. Reid's plans. The bitterness engendered by the anti-contract agitation in which the Liberal politicians had been active participants for two years made it impossible for them, even if satisfied with the wisdom of the course proposed, to agree to Mr. Reid's request without endangering their political future. An election is to take place this fall, denunciation of Reid should be a popular cry, & the average politician wants to take no chances of defeat if he can avert it by a negative policy. There is but six months to wait, & though Mr. Reid can reasonably enough point out that this delay may result in the miscarriage of the project, that aspect of the matter does not weigh with the vote-seeker. It is the curse of the colony, as of all minor, isolated autonomies, that large public questions are not dealt with on their merits, but are subordinated to the petty issues which may mean the gain or loss of a seat to some political carpet-bagger, or to the private ends of some more ambitious aspirant, who sees in an occasion like this the chance to achieve even an evanescent notoriety.

The question as a whole is of such grave moment, & of such comprehensive magnitude, that it may well possess two sides & admit of

the most honest differences of opinion as to its wisdom & feasibility. Mr. Reid intends to consolidate everything he has in property or franchises in the island under a company head, the title being "The Reid-Newfoundland Co." Upon its credit & the security of these holdings it is proposed to raise \$5,000,000 by means of preferred bonds, this money to be applied to the development of the most promising properties which Reid's prospectors have so far located. Mr. Reid has already embarked in the enterprise \$1,000,000 for the purchase of the railway, another \$1,000,000 for the 8 steamers, \$500,000 for the dock & telegraphs, & probably as much more for improved equipment for the whole system, making, say \$3,000,000 in all. This is no small investment for one man, & the extended scope of the whole enterprise forbids the possibility of his grappling with it himself. But so satisfied is he with the bona fides of the project & the value of the properties he holds, that he is willing to become a deferred creditor for the amount he has already adventured in the scheme. In other words, by the deed of trust on which the proposed company is constituted, it is provided that all of the \$5,000,000 to be raised by the bonds shall be spent in improving & developing the properties & become a preferential credit on the revenues thereof, & not until all the claims of these bonds shall have been satisfied does Mr. Reid come in to rank for a dividend on his original investments, which alone made the venture a financial possibility.

It is believed, however, by shrewd local & alien observers, familiar with the present value & the potentialities of iron mines, pulp lands & the like, that Mr. Reid has in the island properties fully worth the \$25,000,000 for which the Co. is capitalized, & that if the Gov-

ernment grants him the requisite permission to effect the transfer the exploitation of these resources will be at a rate unheard of even in these days of lightning-like progress. One of the most promising properties held by Mr. Reid is a pulp-wood area near Grand Lake, where he proposes to erect the largest pulp & paper mills in the world. The existence of an immense extent of suitable forest growth has been determined, the water-power is unlimited, iron pyrites, limestone & sulphur are found in close proximity, & the plans for the whole enterprise are already prepared. Sawmills will also be set up at different points, where the timber can be cut at a profit, & the varied mineral resources of the island will be worked as advantageously as possible. The colonization of the interior will also be grappled with, but, though this will likely be the least satisfactory phase of the undertaking, the initiation of so many minor industries along the line of railway is bound to result in small farming settlements growing up all around them, whereby the operatives may be provided with farm products.

If the great project works out in its entirety the Reid Co. will control all the transportation agencies of the island & dictate its future development. The Reid trains will do the entire inland traffic, & the Reid steamers have a complete monopoly of the coasting trade by steamer. Reid will carry the mails, Reid will transmit the telegrams. Reid will act as the general agency for inter-communication. Reid's docks will repair ocean steamers. Reid's coal mines will supply their bunkers. Reid's industries will ensure them freights. Reid's sawmills will turn out all the timber required for building purposes throughout the island, besides many millions of feet for export, & Reid's paper mills will

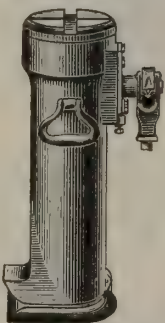
supply the requisite stock for the needs of local journalism, as well as becoming a formidable competitor in the world's markets. Reid's hand will be seen in every phase of industrial activity in the island, & his influence be felt through all grades of our social, political & commercial life, making him, in fact, if not in deed, the ruler of the colony.

Indeed, there is no doubt that the fear of this supremacy politically is one of the main reasons actuating the Bond Ministry in the refusal to sanction the transfer. They contend that even with Mr. Reid, as an individual, in control, the situation is such as to seriously menace the colony's political independence, & that if he were to be replaced by a limited liability company the conditions created would become intolerable. They arraign the "Reid deal" as a whole, & maintain that it was carried by questionable methods, & they decline to sanction the transfer unless Mr. Reid agrees to certain amendments dictated by them. The first of these is that he relinquish his purchase of the telegraph, his payment therefor being returned to him, & the lines reverting to the Government. The reason assigned for this is that these lines, being in the hands of Reid, are no longer safe as a means of private business communication. Mr. Reid, if he so desired, could make an improper use of his control of them, to injure competitors, to profit by secret despatches concerning other people's business, & generally, to avail of the immense opportunities for personal advancement which the possession of these lines ensures. Consequently the Government insist upon a resumption of colonial ownership, & if they succeed in enforcing this concession Reid will be obliged to build about 1,000 miles of telegraph lines at his own expense in order to properly oversee the runnings of his trains & steamers.

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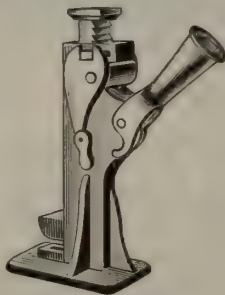
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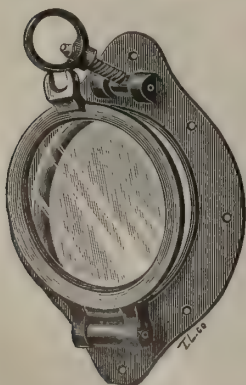
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NEW BOOKLETS.

The Chicago, Milwaukee & St. Paul Railway is issuing a series of booklets regarding points of interest along its lines, and if you are interested in the western country, or contemplating a trip, write GEO. H. HEAFORD, General Passenger Agent, Chicago, Ill., for the special publication desired, enclosing four cents in stamps for postage for each one.

- No. 1. The Pioneer Limited.
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- No. 3. The Fox Lake Country.
- No. 4. Fishing in the Great North Woods.
- No. 5. The Lake Superior Country.
- No. 6. Cape Nome Gold Diggings.
- No. 8. Summer Days in the Lake Country.
- No. 9. Summer Homes, 1900.
- No. 11. The Game of Skat.
- No. 12. Milwaukee—The Convention City.
- No. 13. A Farm in the Timber Country.
- No. 14. Stock Raising in the Sunshine State.
- No. 15. Hunting and Fishing.

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DIRECTORY.

The second change insisted upon is that Reid shall submit for amendment the grants of land which he obtained from the late Winter Ministry. It is alleged that these grants comprehend large sections of farm lands now actually occupied in part. Reid's rights under his grants override the "squatter" tenure under which the great mass of our people possess their holdings, & a rigid enforcement by Reid of his rights in this respect would cause widespread hardship and distress.

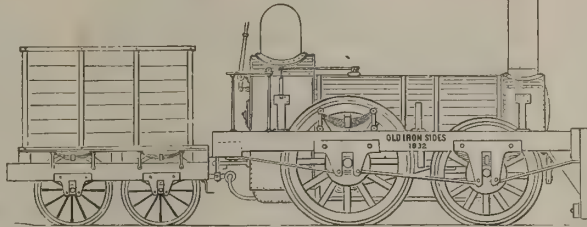
Mr. Reid, on his part, disclaims any idea or intention of dispossessing or interfering with any persons whatever, & offers to give a fee simple grant to any bonafide occupier of land which may be "blanketed" by his concessions. This matter will not offer any serious obstacle to an adjustment, but the rock on which the whole scheme may come to shipwreck is the demand of the Ministry that Mr. Reid consent to the cancellation of the purchase clause of the railway. They are willing that he should be allowed its operation for 50 years, & they are not averse to the quantity of land given him to undertake this service, but they insist that he abandon the ownership on the repayment of his \$1,000,000 & such sum as compensation for other expenditures made by him as an arbitration may award. This proposal is, in its way, scarcely less startling than is Mr. Reid's project, though for a different reason, & the contractor naturally enough declines to seriously consider it. He says, in effect, that it is an attempt to force him to part with what he has rightly come by, & that the Government have no justification for such a course, save that they seek to take advantage of what they think are his necessities, i.e., the getting of money to develop these properties. He further argues that no capitalists would invest in a leasehold concern such large sums as he proposes should be applied to the exploitation of the island's resources, & if the ownership were cancelled the whole enterprise would collapse.

The difference between Bond & Reid has brought about a deadlock. The latter has refused to continue the development works which he had in progress, & is shutting down everything except what the actual operation of the railroad calls for.

Some hundreds of men are thereby thrown out of employment, & the public are being stirred up considerably as a consequence. A large number of people believe that the curtailment of the Reid works will have a disastrous effect upon the colony's prosperity, while the opponents of the scheme contend that Mr. Reid's shutting down should be answered by the Government vigorously enforcing every clause of the railway contract to its strictest letter, instead of its being liberally construed, as at present. How matters will end it is difficult to say, the interests involved being so momentous. Mr. Reid cannot concede what the Government demand, unless at the sacrifice of some of the most favorable features of his projects. The Min-

istry, on the other hand, cannot give way without laying themselves open to an outburst of popular indignation against them. The probability is that a compromise will be effected after the next election, when minor con-

*Ref to Baldwin Loco
Works Aug & S. 1900*



"OLD IRONSIDES," THE FIRST LOCOMOTIVE BUILT AT THE BALDWIN LOCOMOTIVE WORKS IN 1831-2.

cessions will be made by both sides, & the whole subject finally adjusted, the question being then put out of politics for four years, by which time it will probably have been forgotten in the light of more recent events.—Toronto Globe.

Mainly About People.

Alex. Horn, Inspector of Hulls, died at Kingston, Ont., June 18.

Jas. Matthews, of J. & J. T. Matthews, ship owners, Toronto, died there June 6.

Jno. Higginson, at one time Master Car Builder on the C.P.R., died at Detroit, Mich., May 25.

Mrs. F. L. Somerville, wife of the Resident Engineer of the G.T.R. at Toronto, died there June 6.

Duncan Ross, of Malcolm & Ross, the New Brunswick railway contractors, died at Montreal June 28.

Mrs. Thos. Tait, of Montreal, & her daugh-

Captain Wm. McKee, one of the oldest marine men in the Bay of Quinte district, died at Kingston, Ont., June 18, aged 80.

W. Whyte, Manager of the C.P.R. Western lines, arrived at Vancouver July 17, from China & Japan, where he has been on a pleasure trip.

W. Alexander, ex-Chief Engineer of the Montreal St. Ry., has gone to Dublin, having been appointed Chief Engineer of the Dublin Street Ry.

T. Skinner, of London, Eng., one of the directors of the C.P.R., came to Canada early in June & made a trip over the line to Vancouver & return.

P. McCullough, electrician of the Toronto Ry., has gone to England to take charge of the electrical department of the Liverpool corporation tramways.

A. J. McKenna, Travelling Passenger Agent of the C.P.R., has recovered from the severe injuries he sustained in the recent accident at Grand Falls, N.B.

T. G. Shaughnessy's house at St. Patrick, Que., formerly Sir John Macdonald's summer residence, has been taken by H. Joseph, of Montreal, for the summer.

Hon. A. R. Dickey, ex-Minister of Justice, who was drowned at Amherst, N.S., July 3, was one of the promoters of the New England & Nova Scotia Navigation Co.

R. N. Frith, of St. John, N.B., was married there June 6, to Miss Maud Sutherland, daughter of J. N. Sutherland, General Freight Agent of the C.P.R. Atlantic division.

Mrs. Jas. Robb, mother of W. D. Robb, Master Mechanic of the G.T.R. at Toronto, died at Cleveland, Ohio, recently, aged 85. She was buried at Smith's Falls, Ont.

The engagement is announced of Miss Maude Hendrie, of Hamilton, to H. Ledyard, of Detroit, son of H. B. Ledyard, President of the Michigan Central Ry. The wedding will take place in Oct.

P. H. Loftus, general foreman of construction on the Chicago & G.T.R. at Valparaiso, has resigned to become superintendent of construction of the Fritchton Line, with headquarters at Fritchton, Ind.

The Baroness Von Ketteler, wife of the German Minister at Pekin, who is supposed to have been killed during the recent troubles there, is a daughter of H. B. Ledyard, President of the Michigan Central Ry.

A. Wilson, on leaving the employ of the Hamilton, Grimsby & Beamsville Electric Ry. recently, to become chief clerk of the Hamilton St. Ry., was made a presentation by the officers of the H., G. & B. E. R.

Wm. Stitt, Assistant General Passenger Agent of the C. P.R. at Winnipeg, returned there early in June from Hot Springs, where he went for treatment for rheumatism. The change did him a great deal of good.

H. W. Webb, brother of Dr. W. S. Webb, died June 22, at his residence, Beechwood, Scarborough on the Hudson, of heart failure, aged 48. He was a director in the Wagner



BALDWIN COMPOUND DUPLEX LOCOMOTIVE FOR HEAVY GRADE SERVICE.

ter, are spending the summer with her parents on Lake Muskoka.

Mrs. W. F. Egg, wife of the Montreal City Passenger Agent of the C.P.R., is summering at Father Point, Que.

Jas. Ross, of Montreal, & Mrs. Ross, will spend the balance of the summer at their shooting box in Scotland.

Palace Car Co., the Buffalo Erie Basin R.R. Co. & the Oswego & Rome Railroad Co.

S. Potter, for several years Superintendent of the London, Ont. St. Ry., has been appointed in charge of the electric department of the Toronto Ry., succeeding P. McCullough, who has gone to Liverpool, Eng.

The London Daily News correspondent at Smaldeel, South Africa, says that the celerity shown by Major Girouard, who pushed the reconstruction of the railways so that the trains moved forward on each section of the line as the troops advanced was simply marvellous.

R. A. Watters, formerly road master of the Manitoba & Northwestern Ry., who was retained in a similar position by the C.P.R. when the latter Co. took over the M. & N.W. R. recently, was thrown from a gasoline motor on June 7 & died very shortly after. He was accompanying Superintendent James on an inspection trip when the accident occurred, Mr. James being alone with him when he died.

L. A. Hamilton, Land Commissioner of the C.P.R., returned to Winnipeg June 23, after four months' absence in Cuba, where he prospected timber & mineral lands in which Sir Wm. Van Horne & his associates are interested. Mr. Hamilton comes back with a high opinion of the fertility & general aspect of the interior of the island. He crossed the island on horseback, & is enthusiastic in his idea of its future as an agricultural producing territory.

G. C. Jones, Superintendent of the Middle Division of the G.T.R., whose portrait appears on pg. 193, has been in the railway service since 1874, his record being as follows:—1874 to 1883, car checker, operator & despatcher, Atlantic & Great Western, (now Erie); 1883 to 1887 despatcher, Big Four; 1887 to 1896 train despatcher & Chief Train Despatcher, Wabash; July 1896 to March 1898 Superintendent G.T.R. at London, Ont.; Mar. 1898 to May 1899 Superintendent G.T.R. & Wabash at St. Thomas; May 1899 to date Superintendent Middle Division G.T.R. at Toronto.

D. MacGillivray, railway contractor, Vancouver, B.C., died at Sault Ste. Marie, May 22, of small pox. He was born in Bruce county, Ont., & went to B.C. in the seventies, his first work being the building of bridges on the Onderdonk section, between Port Moody & Savonas. He built the Nakusp & Slocan Ry., also the Arrow Lake branch of the C.P.R. between Revelstoke & Arrowhead, & later on he had a contract on the Crow's Nest Pass Ry. At the time of his death he had a contract for 35 miles of grading on the On-

tario & Rainy River Ry., & another contract for ore docks at Michipicoton Harbor for the Algoma Central Ry.

In noticing a trip recently made by A. B. Stickney, President of the Chicago Great Western Ry., over some of the western lines of the C.P.R., a Winnipeg paper speaks of him as an old Winnipegger, and says that "when he lived there 20 years ago he was President of the C.P.R.—the first President that the Co. ever had." This is incorrect. Mr. Stickney was General Superintendent of the C.P.R. at Winnipeg in 1881, having charge of construction & operating, & was succeeded there in the fall of that year by W. C. VanHorne as General Manager. When Mr. Stickney was on the C.P.R., Geo. Stephen was President.

General Manager Hays, of the G.T.R., on returning to Montreal recently from England, said:—"Canada occupies a splendid position in the eyes of the people of Great Britain today. Leaving the sentimental side out of the question altogether, the cost to Canada of sending the contingents to South Africa will pay this country many times over. The British people are greatly pleased at the readiness with which Canada volunteered, & the gallant work her representatives have done in upholding the honor & integrity of the Empire. It has demonstrated, as nothing else could, what dependence is to be placed on this Dominion in case of an Imperial emergency. This advertising of Canada, from a cold-blooded commercial point of view, therefore, will benefit this country many times more than the cost of the expeditions. It will help the development of Canadian enterprises. It just makes the difference of having a friend in advance to deal with when you go to the British capitalist with a proposition. You know you are dealing with one who has a disposition to go into an undertaking with you, instead of one who is indifferent about it."

Corporation Taxation in Manitoba.

At the recent session of the Manitoba Legislature two acts in relation to taxation were passed which apply to transportation & allied companies. The first is the Railway Taxation Act, which applies to all common carriers engaged in the transportation of passengers or property wholly or partly by railway, being within the Province, with the exception of street railways. It applies to every railway company owning or operating a railway in the Province, whether its head office is situated there or not. Each railway company is to annually pay to the Government

n & for the years 1900, 1901 & 1902, two per cent. of its gross earnings, & in each year after 1900 such sum as may be determined by the Lieutenant-Governor in Council, not exceeding three per cent. of its gross earnings. The tax for 1900 is payable Aug 1, based on half the gross earnings for 1899, & after 1900 the tax is payable on April 10 each year, based on the gross earnings for the preceding year. It is provided that nothing in the Act shall take away or lessen any exemption from taxation heretofore granted any railway company by any Act of the Legislature. Provision is further made that every railway company coming under the provisions of the Act & its property of every nature & kind, except land subsidy from the Dominion Government, or land held by it for sale, shall during the continuance of the Act be exempt from all assessment and taxation within the Province, but this shall not take away from any incorporated city any right it may have to assess the real property of a railway company fronting or abutting on any street for taxes for local improvements, nor relieve any railway or telegraph company from payment of taxes imposed by the Corporations Taxation Act.

The other measure, The Corporations Taxation Act, deals with banks, insurance, loan, trust, street railway, telephone, telegraph, gas & express companies.

Street railways in any city shall pay \$500 a year where the track is 20 miles or less, & \$25 for each mile in excess of 20, mileage to be computed on the single track, each mile of double track being counted as 2 miles of single track.

Telegraph companies to pay \$1 a mile per year for each mile of line operated.

Railways or other companies, other than telegraph companies, owning or operating telegraph lines in the Province, to pay \$1 a year. The Lieutenant-Governor in Council may remit the whole or part of the tax if satisfied that the wires are used exclusively for running trains or other railway purposes & not for commercial purposes.

Telephone companies operating lines for gain, to pay, in cities of 10,000 population or over, 50c a year on each telephone under rent, in cities of under 10,000 & in incorporated towns & villages, 25c on each telephone under rent.

Express companies having 50 branches or offices, \$350 a year; under 50, \$250 a year.

Companies paying taxes under this Act shall not be liable to any similar tax to be imposed by any municipality, nor shall they require the license, authorization or permit of any municipality for doing business or establishing agencies therein.



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investment.

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NEXT ANNUAL MEETING at Montreal, Oct. 17 & 18, 1900.

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Hope, Ont.; J. W. Tierney, Arrnprior, Ont.; C. C.
Young, London, Ont.

NEXT ANNUAL MEETING at Hamilton, Ont., Oct. 10, 1900.

National Association Marine Engineers of Canada.

HONORARY PRESIDENT, O. P. St. John, Toronto;
PRES., A. J. Woodward, Toronto; 1st VICE-PRES., R.
Craig, Toronto; and VICE-PRES., E. Abbey, Toronto.

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A. Mills, Toronto.

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PRESIDENT.—F. E. Came, Montreal.
FIRST VICE-PRESIDENT.—R. J. Davidson, Hillburn,
N.Y.

SECOND VICE-PRESIDENT.—W. H. Frisby, Three Riv-
ers, Mich.

HON. SECRETARY-TREASURER.—Acton Burrows, 33
Melinda Street, Toronto.

NEXT ANNUAL MEETING at Montreal, Oct. 16, 1900.

CURRENT TOPICS.

Newspaper Postage.

The Senate is to be commended for throw-
ing out the Postmaster-General's bill, which
provided for a reduction in newspaper postage
from $\frac{1}{2}$ c. to $\frac{1}{8}$ c. a lb. within the Province in
which the paper is printed. We have no sym-
pathy with the "tax on knowledge" cry, & be-
lieve newspapers should pay postage, but all
should be treated alike. Under the act now
in force country newspapers are practically
free of postage, as they are exempt when
mailed to points within 20 miles of the place
of publication, or within a circular area of a
diameter not exceeding 40 miles. No sup-
portable argument has been advanced in de-
fence of this discrimination, & there can be
no doubt that the true policy is to make all
papers pay the same rate per pound, regard-
less of provincial lines, as in the case of letter
postage.

The Transcontinental Service.

The C.P.R.'s Imperial Limited, which is
again doing the 2,906 miles between Montreal
& Vancouver in 100 hours, is in every respect
unique, no other transcontinental train run-
ning under one management, & no other com-
pany having so long a continuous run. As a
contemporary says:—"Four days after leav-
ing Montreal the passenger has skirted Lake
Superior, crossed the incomparable prairies,
passed through the Selkirks & the Rockies,
traversed the Thompson & the Fraser, &
reached the Western sea. There is no trip
by railway equal to it, either for grandeur of
scenery or luxury in travel. From a purely
national point of view, the West should be
seen by all Canadians who can manage to see
it. Not until it is viewed personally can any
one fully comprehend the greatness of our
country, the variety & richness of its indus-
tries & its resources, & the splendour of the
future that awaits it."

Canadian Pacific Mileage.

By the recent additions to its mileage the
C.P.R. has passed the 10,000 mile limit, &
stands out pre-eminently as the greatest owner
of mileage in America. The C.P.R. lines,
including trackage rights of 94 miles, now
stand at 8,184 miles, to which are to be added
the subsidiary lines it owns in the U.S.,
the Duluth, Lake Shore & Atlantic, 589
miles, including trackage rights of 17 miles;
& the Minneapolis, St. Paul & Sault Ste.
Marie, 1,245 miles, a total of 10,018 miles.
These figures will be further increased this
year by branches under construction. The
other American lines having over 4,000 miles
are:

Chicago & Northwestern.....	8,463
Burlington.....	7,890
Atcheson, Topeka & Santa Fe.....	7,782
Southern Pacific.....	7,313
Chicago, Milwaukee & St. Paul.....	6,437
Southern.....	6,416
Missouri Pacific.....	5,326
Great Northern.....	5,201
Northern Pacific.....	4,993
Pennsylvania.....	4,090
Grand Trunk.....	4,183

Fast Time on the G.T.R.

The G.T.R. passenger service, which has
been steadily improving under the present
management, has taken several strides for-
ward by the changes in the main line service,
which went into effect last month, particulars
of which are given on another page. The
banner train is, of course, the International
Limited, which, after securing connections
from Portland & other eastern points, leaves
Montreal at 9 a.m., reaching Toronto at
4.25 p.m., Detroit at 9.30 p.m., & Chicago
at 7.30 a.m., or 23 hours 8 minutes for
the 878.32 miles. A comparison of the net
running time of this train with that of the
Pennsylvania Limited, the most noted fast
train between New York & Chicago, is con-
siderably in favor of the International, its
average running speed for the whole journey
being 43.2-10 miles an hour, against 41 $\frac{1}{2}$ for
the Pennsylvania Limited. The cutting down
of the journey between the two metropolitan
cities of the Dominion to 7 hours 25 minutes
is of great importance. The G.T.R.'s other
new train, the Eastern Flyer, which leaves
Toronto at 10.30 p.m., reaching Montreal
at 7.30 a.m., is also a very important ad-
dition to the service. The officials under
whose management the permanent way & the
equipment have been so improved as to
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The G.T.R. Management.

On returning from England recently Gen-
eral Manager Hays put a quietus on the
silly rumors about his alleged retirement
which have been going the rounds of the
daily press. In answer to a question he said:
"That rumor was started about a year ago. I
think Toronto had the honor of giving it birth.
I am happy to say that my relations with the
board are eminently satisfactory, & have
been from the beginning; you know how that
fact was emphasized during the first year of
my incumbency. I was never more agreeably
& pleasantly situated; I have been treated
with the utmost cordiality and consideration
by the board; indeed, if I do not go more
frequently to the other side, it is because
there is a possibility of being killed by kind-
ness. No; I remain in my present position."
While we never took any stock in the rumors
mentioned & did not think them worth refer-
ring to it is very satisfactory to have an explicit
denial of them. Mr. Hays' successful manage-
ment of the G.T.R. is shown in the improve-
ments in the physical condition of the lines,
in the equipment, in the operation & in the
financial results, & the fact that he is going
to continue the management should be equally
satisfactory to the Co.'s shareholders & to the
Canadian public, both of whom benefit by his
services.

The Hudson's Bay Company.

"The Company of Adventurers of England
trading into Hudson's Bay" is the oldest
transportation company in British North
America, its operations extending from the
Atlantic to the Pacific & Arctic Oceans, & it
must be borne in mind that the Co. rendered
invaluable assistance to the early railway ex-
ploratory & survey parties, particularly to
those in connection with the transcontinental
line, & that it is still an important owner of
steam & sailing vessels. Its continued pros-
perity shows that it is not only "ancient &
honorable" but also vigorous & progressive.
At the recent annual meeting a dividend of
15s. a share was declared as against 13s. for
the previous year, & a bonus of 10s. as
against 7s., making a total distribution of 25s.
a share against 20s. last year. In addition
£10,000 has been added to the reserve fund,
making it £70,000, & £10,000 has been placed
to the credit of the employees benefit fund,
formed a year ago by the appropriation of a
similar amount, while after making these in-
creased payments the balance carried for-
ward is £52,013, which is over £10,000 more
than last year. Advance in the price of
furs & increased receipts in the land de-
partment have contributed to these results,

but more has been accomplished by the modernising of the Co.'s methods of doing business which Mr. Chipman has been steadily pursuing since he was appointed Commissioner, & by the general carrying out of system & the consequent reduction in expenses.

A Satisfactory Selection.

The American Railway Accounting officers, in electing I. G. Ogden, Comptroller of the C.P.R., as President, have paid a compliment to Canada, & recognized ability & worth. Mr. Ogden is one of the oldest officials of the C.P.R. Co. in point of service, having been appointed Auditor at Winnipeg in 1881, soon after which he was transferred to Montreal as Auditor for the whole system, subsequently being appointed Comptroller. Everyone who knows anything of the affairs of the Co. is aware that the important departments over which he presides are managed with conspicuous ability. In selecting him as President the Railway Accounting officers have undoubtedly chosen one of the most competent of their members & one who will, without doubt, make them an excellent presiding officer. It is very gratifying to note that the selection has met with very general approval from the railway & financial press of the United States, as an example of which the following may be quoted from the Financial Review, New York:—"I. G. Ogden is recognized as one of the most prominent men in his special field. During an active career Mr. Ogden has steadily advanced in the estima-

tion of those with whom he has come in contact, & he is one of the most successful officers the road has had during the entire term of its existence. In thus honoring him the Association has not only recognized the position he has attained in his calling; it has also gained for itself a zealous & intelligent officer."

Passenger Traffic Matters.

On taking over the M. & N.W. Ry., & the G.N.W.C. Ry., in Manitoba recently, the C.P.R. reduced the first-class passenger fare from 4c. to 3c. a mile.

On June 11 the C.P.R. again started its Imperial Limited service between Montreal & Vancouver, under which there is a daily service both ways between the two cities, the 2,906 miles being made in exactly 100 hours, the trains consisting of about 8 cars.

"Summer Homes Among the Green Hills of Vermont, the Islands and Shores of Lake Champlain, the Adirondacks and Canada," is the title of a beautifully illustrated pamphlet of 137 pages issued by the Passenger Department of the Central Vermont Ry.

The Union Pacific Ry. is providing its offices in large cities with a mutoscope for displaying some of the interesting points along the Overland route. Six sets of views have been provided, one of them being the Overland Limited going at a speed of a mile a minute.

Ste. Anne de Bellevue, which is situated 20

miles west of Montreal, at the western end of the Island of Montreal, on the banks of the Ottawa River, & within a short distance of the confluence of that stream with the St. Lawrence, is charmingly described & illustrated in a booklet recently issued by the G. T.R. Passenger Department.

Under the title of "The Highlands of Ontario" the G.T.R. Passenger Department has issued in booklet form 32 half tone views, 8x6 ins. each, of the Muskoka Lakes & Georgian Bay districts. They are beautifully printed in tints on heavy coated paper & are for sale by the Canada Railway News Co., at all the news stands on the Co.'s lines in Canada & on the trains. Price 25c.

St. Andrews-by-the-Sea, N.B., is attractively brought to notice in a folder issued by the C.P.R. Passenger Department, a unique feature of which is a panoramic view, some 40 inches in length, reproduced from sectional photographs taken from the balcony of the Algonquin hotel, & embracing several miles of land & sea views. St. Andrews is well described, its history, attractions as a health & pleasure resort, & what there is to do there, an important feature, being well brought out. The half-tone illustrations are particularly good.

How great are the attractions of Canada as a tourist resort the London public have at this moment a good opportunity of judging, for at the Palace Theatre just now we have the biograph enlisted in the cause of practical Imperialism. By its means the spectator



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immediate information is required:
an answer is wanted,
and wanted quick:
you are not in business for exercise:

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will be pleased to furnish details.

may view in comfort all the wonderful scenes that the Canadian Pacific Imperial express rushes past in its course through the Rockies & Selkirks down to the Pacific coast. The little leaflet, by aid of which the audience follows the views, reminds them appropriately enough that "the brains which projected this pathway, & the hands which carried out the work are of the same nationality as those loyal & brave colonists who are now proving their fealty to the Mother Country, fighting under the Union Jack in South Africa. How little," adds the leaflet, "do those who never leave England realize how great is the work & the compass of result achieved by British Empire-makers."—Canadian Gazette.

On June 25 the G.T.R. started a new day service from Montreal westward, the International Limited, leaving Montreal at 9 a.m. The train, which is vested throughout, includes combination baggage & smoker, 1st class car, cafe parlor car & Pullman sleeping car. Toronto is reached at 4.25 p.m., the 333 miles being covered in 7 hours 25 minutes. Only 10 minutes' stop is made at Toronto, whence the train proceeds via Hamilton, London, Chatham & Windsor to Detroit, which is reached at 9.30 p.m. From Detroit it runs over the Detroit & Milwaukee Division to Durand, Mich., there joining the main line from Niagara Falls to Chicago. This lengthens the distance 32 miles over the St. Clair tunnel route, but Chicago is reached at 7.30 a.m., the 878.32 miles being covered in 23 hours 8 minutes.

The G.T.R. has also greatly improved its night service between Toronto & Montreal by putting on a second train, the traffic having outgrown the capacity of the one heretofore run. Under the new time-table the first train which is intended principally to handle the passengers, mails & express for way stations, leaves Toronto at 9 p.m., reaching Montreal at 7 a.m. The second train, a limited one, known as the Eastern Flyer, carrying 1st class passengers only, leaves Toronto at 10.30 p.m., arriving at Montreal at 7.30 a.m. Connection is made with this train by one which leaves Buffalo at 7.15 p.m., & Niagara Falls at 8 p.m., reaching Toronto at 10.15 p.m., thus enabling the Co. to handle a large amount of summer travel from Buffalo & Niagara Falls for the Thousand Islands & points east.

A comparison of speed of the International Limited with the Pennsylvania Limited of the Pennsylvania R.R., the most noted fast train between New York & Chicago, to ride on which passengers must pay \$4 in excess of 1st class passage fare, in addition to extra charge for Pullman accommodation, will be of interest. The mileages & times shown for the Pennsylvania Limited are from Jersey City (across the river from New York), from which the train starts, 14 minutes after passengers leave New York, & 22 minutes have been allowed for ferrying the International Limited over the river from Windsor to Detroit.

PENNSYLVANIA LIMITED.

From Jersey City to	Miles.	No. of stops.	Time. hs. ms.	Miles per hr.
Philadelphia.....	89.76	1	1 59	45 3-10
Harrisburg.....	195.08	2	4 34	42 6-10
Altoona.....	327.06	3	7 39	42 7-10
Pittsburg.....	443.96	5	10 46	41 2-10
Chicago.....	911.96	16	23 46	38 4-10

Allowing 4 minutes for each stop, a total of 64 minutes, leaves net running time 22 hours 42 minutes.

INTERNATIONAL LIMITED.

From Montreal to	Miles.	No. of stops.	Time. hs. ms.	Miles per hr.
Morrisburg.....	92.27	1	1 52	49 4-10
Napawee.....	198.51	5	4 12	47 3-10
Toronto.....	333	9	7 25	44 9-10
London.....	448	13	10 20	43 4-10
Chicago.....	878.32	42	23 08	37 9-10

Deducting 4 minutes for each stop, or 168 minutes, leaves as net running time 20 hours 20 minutes.

The average speed of the International Limited for the whole journey is 43 2-10th miles an hour, & for the Pennsylvania Limited 41 5-10th miles an hour.

RAILWAY APPOINTMENTS, Etc.

Algoma Central.—T. J. Kennedy, heretofore Superintendent of the C.P.R. at North Bay, Ont., has been appointed General Superintendent of the Algoma Central Ry., & also of its subsidiary line, the Manitoulin & North Shore Ry., particulars of which are given in our Railway Development Department. All departments except that of the Auditor are directly under the supervision of the General Superintendent, who will look after the surveys & the construction & operation of the lines mentioned.

Following is a list of officers revised to date:—President, F. H. Clergue; Secretary, H. C. Hamilton; Treasurer, F. S. Lewis; Assistant to President, B. J. Clergue; General Manager, E. V. Clergue; General Superintendent, T. J. Kennedy; Auditor, C. P. Worthington; Purchasing Agent, A. M. Harnwell; General Traffic Manager, W. B. Rosevear; Master Mechanic, W. L. Kerr; Chief Engineer, J. A. Wilde; Assistant Chief Engineer, R. C. Smith; Superintendent Steamship Lines, A. Miscampbell.

Canada Atlantic & Plant Steamship Co.—H. L. Chipman, heretofore Superintendent, has been appointed Manager, with headquarters at Halifax, N.S. In our last issue it was erroneously stated he had been appointed Manager of the Boston branch. The headquarters of the Co. have been removed to Halifax.

Canadian Pacific.—C. Murphy, heretofore acting Superintendent, has been appointed Superintendent of the Chapeau Division, with headquarters at Chapleau.

T. Hay, heretofore Superintendent at Schreiber, has been appointed Superintendent of the North Bay Division, with headquarters at North Bay, succeeding T. J. Kennedy, resigned to enter the service of the Algoma Central Ry.

R. J. E. Chapple, heretofore Chief Clerk in the General Superintendent's office at Montreal, has been appointed Acting Superintendent of the Schreiber Division, with headquarters at Schreiber, succeeding T. Hay, removed to North Bay.

J. Woodman, Divisional Engineer, with office at Winnipeg, has been given special charge of new work & maintenance of standards in bridges, buildings, roadbed, track & water service.

G. H. Webster, formerly Engineer & Land Commissioner of the Manitoba & Northwestern Ry., has been appointed Resident Engineer of the C.P.R., with office at Winnipeg, with charge of engineering matters east of Moose Jaw.

F. F. Busteed, heretofore Resident Engineer at Rat Portage, has been transferred to a similar position at Medicine Hat, with charge of engineering matters west of Moose Jaw, inclusive.

The maintenance of bridges, buildings, roadbed, track & water service on the Western Division will hereafter be in charge of superintendents.

Geo. Stephen, of the freight department at Winnipeg, has been appointed Travelling Freight Agent.

A number of the officials of the Manitoba & Northwestern, which was recently acquired by the C.P.R., have been given positions in the latter Co.'s service. W. R. Baker, General Manager of the M. & N.W.R., has been appointed Executive Agent for the C.P.R. in Manitoba & the N.W.T. G. H. Webster, Engineer & Land Commissioner of the M. & N.W.R., has been appointed Resident Engineer of the C.P.R. at Winnipeg. J. H. Boyes, Locomotive Foreman of the M. & N.W.R. at Portage la Prairie, is retained there in that position by the C.P.R. R. Watters, Roadmaster of the M. & N.W.R., was retained in a similar position by the C.P.R. until his recent accidental death. N. Hayden, Foreman of Bridges & Buildings for the M. & N.W.R., is acting in the same capacity for the C.P.R.

Central Vermont.—Guy Tombs has been appointed Travelling Freight Agent with headquarters at St. John's, Que. He was formerly in the C.V. Montreal freight office, & has been with the G.T.R. for the past year.

Grand Trunk.—T. Treleaven, heretofore Car Foreman at London, has been appointed acting Master Car Builder there, succeeding S. King, appointed Master Car Builder of the Intercolonial.

Grand Trunk & Chicago & Grand Trunk.—Dr. J. A. Hutchison has been appointed Chief Surgeon of the lines west of the Detroit & St. Clair Rivers, vice Dr. T. W. Miller, deceased. Office at Montreal.

Dominion Atlantic.—P. Giffkins, heretofore Superintendent, has been appointed General Manager. W. Fraser, heretofore Assistant Superintendent, has been appointed Superintendent.

Intercolonial.—A paragraph has been going the rounds of Maritime Province papers stating that M. Somers has been appointed track master of the Northern Division to succeed the late T. Plummer. This is incorrect, M. Somers having been appointed section foreman, not trackmaster.

S. King has been appointed Master Car Builder at Moncton. He has heretofore been Master Car Builder of the G.T.R. at London, Ont.

Minneapolis, St. Paul & Sault Ste. Marie.—F. W. Curtis has been appointed Assistant Superintendent of the Minnesota Division with headquarters at Enderlin, N.D.

Northern Pacific.—Leave of absence having been granted to General Superintendent M. C. Kimberley until Oct. 1, A. E. Laws has been appointed acting General Superintendent.

M. P. Martin, in addition to his duties as Auditor, will also assume those of Auditor of Disbursements.

Port Arthur, Duluth & Western.—A. J. Gorrie, for many years chief clerk in the office of the Superintendent of the C.P.R. at Fort William, has been appointed Superintendent of the P.A.D. & W., with headquarters at Port Arthur, succeeding Ross Thompson who has gone to the Sydney & Louisburg Ry. It is probable that Mr. Gorrie will also be Superintendent of the Ontario Division of the Canadian Northern when it is handed over to the operating department.

Sydney & Louisburg.—Ross Thompson, heretofore Superintendent of the Port Arthur, Duluth & Western, has received an appointment on the S. & L. R., with headquarters at Glace Bay, N.S.

White Pass & Yukon.—C. M. Chambers has been appointed General Agent, with headquarters at Dawson, Yukon, vice S. E. Adair.

Railway Operating Matters.

As showing the possibilities of the permanent way, rolling stock & motive power of the C.P.R. Western lines it may be mentioned that an immigrant extra, consisting of 19 fully loaded coaches & 3 baggage cars, 22 cars all told, left Fort William June 5 at 19.20 (7.20 p.m.) & arrived at Selkirk (405.4 miles) at 11.20 a.m., June 6, averaging 25 miles an hour, including two stops for inspection & change of engines & a delay meeting the down limited & being passed by the up limited.

Engine 728, a consolidated cross over compound, pulled the train on the Thunder Bay section; engine 726, same type, on the Wabigoon section, & engine 731, of same type, on the Rat Portage section. The train was run without any jerking & was moved as smoothly as the regular passenger train. If this is not a record it comes pretty near it.

Dominion Railway and Bridge Subsidies.

The resolutions introduced in the House of Commons early in July by the Minister of Railways, respecting the aiding of Railways, & which were adopted, were as follows:—

That it is expedient to authorize the Governor-in-Council to grant a subsidy of \$3,200 a mile towards the construction of each of the undermentioned lines of railway (not exceeding in any case the number of miles herein-after respectively stated), which shall not cost more on the average than \$15,000 a mile for the mileage subsidized, & towards the construction of each of the said lines of railway not exceeding the mileage hereinafter stated, which shall cost more on the average than \$15,000 a mile for the mileage subsidized, a further subsidy beyond the sum of \$3,200 a mile of 50% on so much of the average cost of mileage subsidized as shall be in excess of \$15,000 a mile, such subsidy not exceeding in the whole \$6,400 a mile. The expression "cost" used in this resolution means the actual, necessary & reasonable cost & shall include the amount expended upon any bridge, up to & not exceeding \$25,000, forming part of the line of railway subsidized not otherwise receiving any bonus, but shall not include the cost of equipping the railway, nor the cost of terminals & right of way of the railway in any city or incorporated town; & such actual, necessary & reasonable cost shall be determined by the Governor-in-Council, upon the recommendation of the Minister of Railways & Canals, & upon the report of the Chief Engineer of Government Railways, certifying that he has made or caused to be made an inspection of the railway for which payment of subsidy is asked, & careful inquiry into the cost thereof, & that in his opinion the amount upon which the subsidy is claimed is reasonable & does not exceed the true, actual & proper cost of the construction of such railway.

Instead of giving the list of lines in the order of the resolutions we have arranged them by provinces, which is more convenient.

NOVA SCOTIA.

From Lockeport, to Sable River, or other convenient point of railway connection, not exceeding 20 miles, \$64,000.

Inverness & Richmond Ry., for extension northward from Broad Cove towards Chetivcamp, not exceeding 40 miles, \$128,000.

From Bridgetown to Victoria Beach, not exceeding 30 miles, \$96,000.

From the Intercolonial Ry., Pictou Branch,

to Kempton, not exceeding 4½ miles, \$14,400.

From Brazil Lake on the Dominion Atlantic Ry., to Kentville, not exceeding 11 miles, \$35,200.

From Halifax towards the Central Ry. of N.S., in the County of Lunenburg, in addition to the 20 miles authorized by 62-63 Vic., chap. 7, not exceeding 20 miles, \$64,000.

NEW BRUNSWICK.

Restigouche & Western Ry., in addition to the 15 miles subsidized by 62-63 Vic., chap. 7, on the easterly section of the line, & in continuation from the westerly end of that 15

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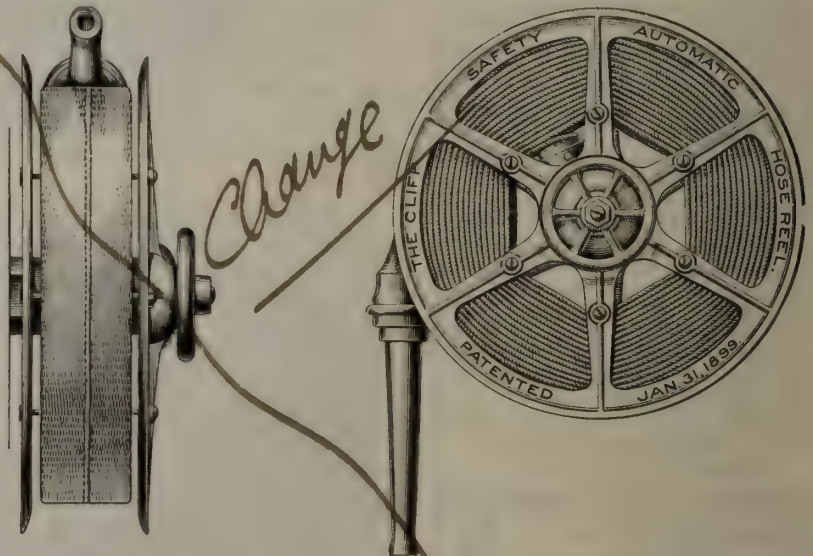
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miles, a further 15 miles towards the St. John River; & in addition to the 12 miles subsidized by the said chapter on the westerly section of the line, a further distance from the easterly end thereof of 15 miles, towards Campbellton, N.B., not exceeding 30 miles, \$96,000.

From St. Charles Jct. on the I.C.R. towards the St. Francis Branch of the Temiscouata Ry., not exceeding 45 miles, & from the mouth of the St. Francis River, N.B., westerly towards St. Charles Jct., 15 miles, in all not exceeding 60 miles, \$192,000.

From Bristol, on the C.P.R., westerly, not exceeding 17 miles, \$54,400.

From Shédiac to Shemogue, not exceeding 38 miles, \$121,600.

QUEBEC.

Grand Trunk Ry, towards cost of rebuilding & enlargement of Victoria Bridge, in addition to amount received by the Co. on account of the subsidy granted by 60-61 Vic., chap. 4, viz.: \$270,000, to make up the grant in aid of the undertaking to \$500,000, not exceeding \$230,000.

Railway & traffic bridge over the Ottawa River at Nepean Point, between Ottawa & Hull, upon condition that the bridge provide suitable facilities, to the satisfaction of the Minister of Railways & Canals, for free vehicular & foot passenger traffic, the same as upon a public highway, in addition to the \$112,500 already granted, not exceeding \$100,000.

See from St. Charles Jct. on I.C.R. towards St. Francis branch of Temiscouata Ry., under head of New Brunswick subsidies.

Montfort & Gatineau Colonization Ry. from Arundel to Preston Township, near Hartwell, not exceeding 30 miles, \$96,000.

Chateauguay & Northern Ry., from Hochelaga Ward, Montreal, to the Great Northern Ry. in or near Joliette, passing near L'Assomption, Quebec, with a spur into that town, not exceeding 42 miles, \$134,400.

Single track standard railway bridge, with two roadways 10 ft. wide, from Bout de L'Isle to Charlemagne, at the junction of the Ottawa & St. Lawrence rivers, \$150,000.

Bridge across the Lac Ouareau River, \$15,000.

Arthabaskaville Ry., from Victoriaville to Chester West, not exceeding 12 miles, \$38,400.

Great Northern Ry., branch from or near Joliette towards Ste. Emilie, touching the parishes of Ste. Beatrix & St. Jean de Matha, not exceeding 20 miles, \$64,000.

From Farnham to Frelighsburg & the International Boundary Line, not exceeding 21 miles, \$67,200.

A railway bridge over the St. Francis River, in lieu of the grant under 62-63 Vic., chap. 7, at St. Francois du Lac, on condition that the bridge be built so as to allow the municipalities to make use thereof, to establish & maintain a suitable railway for the free passage of foot passengers, vehicles & animals, to be approved by the Minister of Railways and Canals (revote), \$50,000.

A railway bridge over the Nicolet River at Nicolet, in lieu of grant under 62-63 Vic., chap. 7 (revote), \$15,000.

Quebec Bridge.—The subsidy provided by chap. 7 of the statutes of 1899 towards the construction of a railway bridge over the St. Lawrence River at Chaudiere Basin, near Quebec, shall be deemed to be applicable, as to one-third thereof, to the substructure & approaches, & as to two-thirds thereof to the superstructure, & the same may be paid upon that basis by authority of the Governor-in-Council, upon progress estimates to be furnished by the Chief Engineer of Government Railways & Canals, so that one-third of such subsidy, & no more, may be paid in respect & upon completion of the masonry of the substructure & approaches of the said bridge, one-third, & no more, upon the work & material of one-half of the superstructure being

done & supplied, in respect of such work & material, & the remaining one-third upon the completion of the whole work.

ONTARIO.

From or near the junction of the Irondale, Bancroft & Ottawa Ry. & the G. T. R. to Minden, not exceeding 12 miles, \$38,400.

Strathroy & Western Counties Ry., from or near Caradoc Station on the C. P. R. to Strathroy, not exceeding 7 miles (revote), \$22,400.

From the Pembroke Southern Ry., at or near Golden Lake, towards the Irondale, Bancroft & Ottawa Ry. at or near Bancroft, for the further extension westerly from the western terminus of the 20 miles granted in 1897 for not exceeding 20 miles, \$64,000.

Algoma Central Ry. Co., for 25 miles from its terminus at Michipicoton Harbor, towards the main line of the C. P. R., & for a further extension from Sault Ste. Marie towards Michipicoton River & Harbor, towards the main line of the C. P. R., 25 miles in all, not exceeding 50 miles, \$160,000.

Central Ontario Ry., for a further extension from or near Bancroft to the Canada Atlantic Ry., between Whitney & Barry's Bay, not exceeding 20 miles, \$64,000.

Manitoulin & North Shore Ry., between Little Current, Manitoulin Island & Sudbury, on the C. P. R., the Co. undertaking to bridge between Little Current & the mainland, the bridge to be so constructed & maintained as to afford suitable facilities, in the opinion of the Minister of Railways & Canals, for free vehicular traffic, the same as upon a public highway, the work to be begun & prosecuted from Little Current & Sudbury, one-half of the subsidy to be applicable, as earned, in respect of the work beginning at Little Current & carried on towards Sudbury, & one-half to be applicable, as earned, in respect of the work beginning at Sudbury & carried on towards Little Current, the railway to cross the Sault Ste. Marie branch of the C. P. R., not exceeding 66 miles, \$211,200.

From Bracebridge to or near Baysville, not exceeding 15 miles, \$48,000.

From a point northerly 20 miles from Parry Sound, to the French River, not exceeding 35 miles, \$112,000.

From 20 miles easterly from Haliburton, via Whitney, towards Mattawa, not exceeding 40 miles, \$128,000.

Kingston & Pembroke Ry., for a branch to iron mines in Bedford Township, not exceeding 12 miles, \$38,400.

Thousand Islands Ry., for an extension from the present northerly terminus easterly, not exceeding 2 miles, \$6,400. Also for an extension to connect with the Brockville, Westport & Sault Ste. Marie Ry., the Bay of Quinte Ry., the Kingston, Smith's Falls & Ottawa Ry. or the waters of the Rideau Canal, the balance remaining of subsidy granted by 55-56 Vic., chap. 5, not exceeding 9½ miles (revote), \$30,400.

From Dymont, on the C. P. R., to the New Klondike mining district, not exceeding 7 miles, \$22,400.

Schomberg & Aurora Ry., for an extension from its easterly terminus to or near Bond's Lake, not exceeding 4 miles, \$12,800.

Nipissing & James Bay Ry., from or near North Bay, on the C. P. R., towards James' Bay or Lake Tamagaming, not exceeding 20 miles (revote), \$64,000.

Ottawa & New York Ry. Co's bridge over the St. Lawrence River & for the Canadian portion of such bridge, not exceeding \$90,000.

Interprovincial Bridge between Ottawa & Hull. See under Quebec subsidies.

MANITOBA & NORTHWEST TERRITORIES.

Canadian Northern Ry. extension, north of Swan River towards Prince Albert, in addition to the grant by 62-63 Vic., chap. 7, a further mileage not exceeding 100 miles, \$320,000.

From the westerly end of the Waskada branch of the C. P. R., further westward, not exceeding 20 miles, \$64,000.

From the Alberta Ry. & Coal Co's Ry. towards Cardston, 30 miles at \$2,500 a mile, \$75,000.

BRITISH COLUMBIA.

Kaslo & Lardo-Duncan Ry. from Duncan Lake towards Lardo or Arrow Lake, or from Lardo to Arrow Lake, not exceeding 30 miles, \$96,000.

It is provided that all the lines for which subsidies are granted, unless they are already commenced, shall be commenced by Aug. 1, 1902, & completed by Aug. 1, 1904. The following portions are quoted fully.

That the granting of such subsidies, & the receipt thereof by the respective companies, shall be subject to the condition that the Governor-in-Council may at all times provide, & secure to other companies such running powers, traffic arrangements and other rights as will afford to all railways connecting with those so subsidized, reasonable & proper facilities in exercising such running powers, fair & reasonable traffic arrangements with connecting companies, & equal mileage rates between all such connecting railways; & the Governor-in-Council shall have absolute control at all time over the rates & tolls to be levied & imposed by any of the companies or upon any of the railways hereby subsidized.

That every company receiving a subsidy under this Act, its successors or assigns, & any person or company controlling or operating the railway or portion of railway subsidized under this Act, shall each year furnish to the Government of Canada transportation for men, supplies, material & mails over the portion of its line in respect of which it has received such subsidy, & whenever required, shall furnish mail cars properly equipped for such mail service, & such transportation & service shall be performed at such rates as are agreed upon between the Minister of the Department of the Government for which such service is being performed & the company performing it, & in case of disagreement, then at such rates as are approved by the Governor-in-Council; & in or towards payment for such charges the Government of Canada shall be credited by the company with a sum equal to 3% per annum on the amount of subsidy received by the company under this Act.

SHIPPING MATTERS.

Ice-Breaker for the St. Lawrence.

Joseph Reynar, of Three Rivers, Que., writes: The question of navigating the St. Lawrence in winter will probably never be seriously entertained—now that we have sufficient railway connection with the Atlantic winter ports of Halifax, St. John, N.B., Portland, Boston, Baltimore & New York. But we should try to open the St. Lawrence from Quebec to Montreal nearly one month earlier, & keep it open a couple of weeks longer than under present circumstances—when we depend on the sun to do our work.

In the spring of 1898 the St. Lawrence was clear of ice in the first week of April—the Richelieu Co.'s steamer Berthier arrived at Three Rivers from Montreal on April 6. The spring opened early, & the warm sun had the effect of doing what a good ice-breaker can do every spring at about the same date—or earlier—and not at a heavy outlay.

The ice-breakers built for Russia by Sir W. G. Armstrong, Whitworth & Co., of Newcastle-on-Tyne, are probably the best in the world—and have done remarkably good work in opening harbors—& in some cases, keeping up regular communication through ice-fields, in various parts of Russia, during the winter months. The Ermack is undoubtedly the largest & strongest ice-breaker ever constructed. Her dimensions are as follows:

Length, 305 ft.; breadth, 71 ft.; depth, 42 ft. She was built at the Armstrong works for the Russian Government in 1899, under the supervision of Vice-Admiral Marakoff, at a cost of upwards of \$1,000,000. She has 3 screws astern & 1 screw forward. The forward screw is not intended for speed purposes, but to enable the ship to clear her way & prevent lumps of ice accumulating under her bottom, which is effectually done by reversing the bow screw. The propeller blades are very massive, & made of nicked steel. Her speed is about 16 knots. She cuts easily through field ice of 4 to 5 ft. thick, & through packed ice of much greater thickness. To attain the speed of 16 knots with all boilers working, the highest indicated power developed was about 12,000. Cutting through ice of about 18 ins. thickness she maintains a speed of about 6 knots. She has large cargo, or coal space, & with 3,000 tons of coal aboard she draws 25 ft., & only 19 ft. with 300 tons of coal in her bunkers. The Ermack would be larger, & would cost more than a suitable ice-breaker for the St. Lawrence could be constructed for. Probably at a cost of \$600,000 we could secure a vessel better suited for the work required in Canada, with lighter draught & strong enough for all purposes.

The Sampo was built by the same firm in 1898 for Russia, & is of the following dimensions: Length, 202 ft.; breadth, 43 ft.; depth, 22 ft. She has 1 screw aft & 1 forward. She did good work in the harbors of Helsing-

fors & Hango, & cut through ice about 12 ins. thick at a speed of 8 knots, without pressing the machinery. She has cut through a drift (or packed) ice from 5 to 8 ft. in thickness. Piled ice would perhaps be a better term for packed or drift ice.

The Saratooski Ledocal is a smaller type of ice breaker & was built for service on the river Volga. She is a twin screw. Her machinery is of the compound type, working at a pressure of 100 lbs. Her propellers are of maganese bronze—with blades & boss cast in one piece of great strength—almost unbreakable. She has successfully cut through ice 3 ft. thick. Her dimensions are: Length, 147 ft.; breadth, 37 ft.; depth, 16 ft. Her boilers are constructed so that oil may be used instead of coal. She is a smaller vessel than the Sampo & would probably not be quite large enough for work on the St. Lawrence.

The Baikal, also built by the Armstrongs, was for passenger carrying & ice breaking combined, on Lake Baikal, & the line of the Siberian railway. Her dimensions are: Length, 200 ft.; breadth, 34 ft.; depth, 17 ft. She has triple expansion engines with a speed of 12 knots. She cuts through ice 12 to 18 ins. thick.

In addition to this vessel, a very large railway ferry steamer was constructed for ferrying railway cars across Lake Baikal. Her dimensions are: Length, 290 ft.; breadth, 57 ft.; draught of water, 18 ft. She has 2 screws astern & 1 forward—3 sets of triple expansion

engines working at a pressure of 160 lbs. She is built of Siemens-Martin steel, abnormally strong & heavy. Her displacement is 4,200 tons. She is fitted up with staterooms, saloon, etc., for accommodation of passengers.

The Odessa, a small ice breaker, was constructed to work in the port of Odessa, in Southern Russia. Her dimensions are: Length, 158 ft.; breadth, 42 ft.; depth, 25 ft. She has triple expansion screw engines & can cut through ice of about 2 ft. thick.

It must be admitted that the time has come for the Government of Canada to take prompt action in providing an ice-breaker for the St. Lawrence. I would suggest the construction immediately of a vessel, not quite as large as the Ermack, but of about the following dimensions: Length, 250 ft.; breadth, 50 ft.; draught of water, 18 to 20 ft.; fitted with 3 sets of triple expansion engines—twin screws astern, & 1 screw forward. Her duty would be to remain at Quebec during the winter, & prevent the "key" being formed at Cap Rouge. Every time the ice-bridge formed there she should cut it out, & thus prevent the formation of a mass of ice, which has already caused serious delay in the navigation of the St. Lawrence to Montreal. About April 1 every spring she should commence her annual cutting out of the ice all the way to Montreal, so that our first spring steamers may be scheduled to arrive in Montreal not later than April 10. If the "key" at Cap Rouge should form too thick for cutting through by our

MANITOBA

The Government Crop Bulletin issued Dec. 12th, 1899, gives the following statistics for the year:

CROPS.

ACRES.	AVERAGE YIELD.	TOTAL.
Wheat.... 1,629,995	17.13 bus.	27,922,230 bus.
Oats.... 575,156	38.80 "	22,318,378 "
Barley.... 182,912	29.4 "	5,379,156 "
Potatoes... 19,151	168.5 "	3,226,395 "

STOCK.

Beef Cattle exported during the year	12,000
Stockers exported	35,000
Total value dairy products	\$470,559 09

10,500 FARM LABORERS

Came from Eastern Canada to assist in the harvest fields of Manitoba in 1899—and the demand was not fully satisfied.

MANITOBA FARMERS ARE PROSPEROUS.

Farmers erected, last year, farm buildings valued at one and one-half million dollars.

MANITOBA LANDS—For sale by the Provincial Government. Over 1,600,000 acres of choice land in all parts of the Province are now offered at from \$2.00 to \$5.00 per acre. Payments extend over eight years. **Special Attention** is directed to 500,000 acres along the line of the Manitoba and Northwestern Railway at \$3.00 and \$3.50 per acre.

FREE HOMESTEADS are still available in many parts of the Province.

For full information, maps, etc., **FREE**, address J. A. DAVIDSON, Minister of Agriculture and Immigration, Winnipeg, Manitoba. Or C. H. JEFFERYS, Manitoba Emigration Agt., Union Station, Toronto, Ont.

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Jacques Cartier, it should be blown up with dynamite whenever required during the winter. When the Jacques Cartier would have finished her work between Quebec and Montreal she would proceed to the Saguenay, & open that river to navigation. Under present circumstances it is the second or third week in May before vessels can go up the Saguenay river. During the summer the Jacques Cartier should be stationed at Sydney—or some other most convenient port—and be ready to proceed at a moment's notice to the relief of any stranded vessel in the Straits of Belle Isle, on the coast of Anticosti, or elsewhere. I need only allude to the wreck of that fine steamer the Scotsman last season, to prove the advantage of having our Jacques Cartier always on hand in case of emergency. How useful she would also be in assisting vessels late in the autumn, when a rather too early formation of ice on the St. Lawrence threatens to lock up some vessels all winter. On one occasion the Ermack rescued 9 ice-bound steamers outside the port of Reval—and she has conveyed safely about 100 steamers into ice-bound ports. Our Jacques Cartier would seldom have to cut through ice more than 24 ins. thick on the St. Lawrence. I hope this important matter will be taken up seriously by the shipping & insurance interests, & especially by our representatives in Parliament & the Government of Canada. We cannot hope for uninterrupted winter navigation of the St. Lawrence, but we can save at least a month by having our Jacques Cartier built & at work as soon as possible.

Toronto Harbor Improvements.

J. R. Roy, C.E., representing the Dominion Department of Public Works, & W. T. Jennings, C.E., representing the City of Toronto, have presented a report on the improvements they consider necessary to Toronto harbor. In studying the harbor, they have taken into examination the following features: The city of Toronto; the harbor proper; the marsh, & Ashbridge's Bay; the formation, condition, & present requirements of Toronto harbor; the abatement of detrimental features, such as the discharge into the harbor of dirt & sewage from the city sewers; the useful employment of material to be moved from the harbor; the diversion of the Don, & the useful employment of solid matter brought down to it during periods of floods; the entrances into the harbor, & Ashbridge's channel; the protection & the improvement of the peninsula by the use of groynes.

The report states that the sewage of nearly the entire city is discharged into the harbor, together with a great quantity of solid matter from the streets & drains. This condition is characterized as intolerable, & the experts advise that trunk sewers be constructed, & the objectionable matter entirely deflected from the harbor.

The harbor is described as containing an area of 3 square miles; 60% of this area is over 14 ft. deep. Deposits are to be removed from various points, as along the city front, between Queen's wharf & Bay St.; outside the new windmill line, requiring the removal of 292,000 cub. yds. of sand & silt; east 48.75 acres is to be removed, containing 359,000 cub. yds.; between the new windmill line & the present dock line, 29.40 acres, containing 178,000 cub. yds.; the channel from Gooderham's wharf, eastward, from the right bank of the Don, is filled with silt, & this must be either cleared out, & separated from the proposed new course for the Don, at the G.T.R. bridge, or it should be filled up.

The city slips & private wharf berths are nearly all too shallow to permit of access of vessels of full canal capacity. From a comparison of depth records the engineers show that the slips are gradually filling up. From 1889 to 1899, a deposit of 172,000 cub. yds. of

silt has drifted into the Don. The total cost of dredging the harbor, since 1880, has been \$108,221, an average of \$5,411 a year. To improve the present conditions they recommend: That the Don be diverted into the marsh area; that immediate steps be taken for the disposal of the sewage outside the harbor; that silt be stopped from entering the harbor by the completion of entrance jetties; that the deposit be removed from the city's side to a depth of 16 ft.; that Ashbridge's channel be enlarged to its junction with the proposed new course of the Don.

Dealing with the requirements of the harbor entrances, they recommend that the jetties of the eastern entrance be extended 1,000 ft. southward; that the extremity of the entrance should be enlarged to, at least, 750 ft., & that cribs be sunk to a depth that would permit of a 20-ft. channel, if at any time necessary. This extension will prevent the silting up of the channel. To secure Queen's wharf channel and further define it an addition of 200 ft. is recommended to outer pier. That the Eastern channel be dredged to a depth of 16 ft., & the Western one to the present elevation of its solid rock bottom, also that rocks be removed from the lake approach to the latter. Owing to the deepening of the Great Lakes canal system to 14 ft., terminating at Montreal, it is advisable that all improvements made in the harbor & entrances should be of such a character as to enable vessels of, at least, that draught to berth at any wharf within the harbor; also that a later improvement to 20 ft. be kept in view when designing entrance works.

Recommendations are made for the protection of the Island Beach by groynes. For the employment of the material to be removed from the harbor, the engineers recommend that four blocks of land be filled in. The boundaries are as follows: Block A, 25 acres, bounded on the north by Don channel, east by Cherry St., south by Ashbridge's channel, west in the eastern limit of the harbor, giving 3,500 ft. of wharfage. Block B, 12 acres, to south of Ashbridge's channel, & fronting on harbor. Block C, 62½ acres, on west side of marsh in harbor, extending south from block B to Island breakwater. Block D, 330 acres, to fill the marsh area up to a useful level. All these blocks will entail considerable sheet piling & crib work.

The report refers to the deterioration of the harbor by reason of the deposits from the Don, & to prevent further filling up it is recommended: That the old channel of the Don be separated from the new one by sheet piling at the westerly line of the new channel, south of the G.T.R. bridge. But this old channel will still be retained as a portion of the harbor if desired, or if not, it can be filled in at a reasonable cost. A new channel of a width of 125 ft., & a depth of 14 ft. below low water, is recommended to be extended southerly, & in line with the improved channel between King St. & the G.T.R. bridge; across Ashbridge's Bay channel from the harbor, thence almost to the Island bar, a distance of 4,800 ft.

The estimated cost of all the dredging & crib work required in carrying out these recommendations is as follows:

Dredging harbor.....	\$140,000
Eastern entrance.....	250,000
Western entrance.....	21,000
Ashbridge and Don channel improvement.....	100,000
Don works.....	80,000
Placing groynes.....	150,000
Making areas of land.....	447,787

Decay of the Buffalo-New York Route.

A Buffalo, N.Y., correspondent writes.—A year ago the business men of New York commenced to realize that the export grain & provision trade at that port was permanently

declining at a rapid rate, & that other U.S. ports on the Atlantic seaboard & Gulf of Mexico were cutting in. At first the cause of the divergence of the trade was generally stated to be due to the decadence of the Erie Canal. Last spring an investigation was made, & it was discovered that the most prominent shippers in Chicago of grain & provisions were securing better rates to Boston & Montreal than to the other seaports. This discovery put a wet blanket upon the agitation in New York for the enlargement of the Erie Canal, inasmuch as the fact was established that trade is being so distributed that New York can no longer expect to be the controlling port.

A few weeks ago the business men of this city commenced to realize that the Buffalo route has ceased to control the grain transportation trade. The trade is being diverted to Erie & Fairport on Lake Erie, to the Georgian Bay, & to Montreal. There are about 50 elevators at this harbor, but the amount of grain being handled now is not much more than that which is going to the Georgian Bay ports. There is certainly rather than fear that the decline of the grain trade at this port is permanent, for the strongest competition is by U.S. routes. The result is that interest in Buffalo in the enlargement of the Erie Canal has gone by the board. One feature of the situation that is giving serious discussion is that there is so little grain arriving at this port that few canal boats can get cargoes, although willing to take them at the low price going. There is plenty of westbound package freight offered canal boats at New York at high rates, but not high enough to be profitable if the boats have to go east without cargo.

Up to this year there was no questioning the idea that the most advantageous route for western grain & produce to the seaboard was that by way of Buffalo, which permits the longest distance of carriage by deep-draft vessels, with transfer to canal or minimum of grade railroad. But the one disadvantage of this route lies at New York harbor, where the unprogressive facilities for transfer to ocean vessels have developed into a burdensome expense. Other seaports, such as Boston & Newport News, have not this disadvantage, & thus it has become possible to shorten somewhat the distance of the lake carriage in deep-draft vessels, & transfer the grain at Erie & Fairport. Competition in transportation, which was never greater, supplied a reason for the grain trade being so promptly diverted from the Buffalo route.

Next in popularity at present is the Georgian Bay route, permitting short distance carriage of grain in deep draft vessels, with long haul by rail. Bidders for business by this route have as their greatest advantage their combination of enterprise & determination. That method is proving increasingly successful. When it is so extended that the route will be equipped with a chain of mammoth elevators from the grain fields to the threshold of the British market, business will be established upon too strong a foundation to be displaced for many years. Reports from Chicago this season are that cargoes of grain are being secured for the Georgian Bay route much more readily than for the other routes.

Although the St. Lawrence route, permitting the maximum distance of carriage by deep-draft vessels in competition with a deep artificial waterway to the seaboard, opened up for business at the beginning of this season, there is no radical increase as yet in shipments by that route. It is evident that the completion of the projected terminal facilities is essential to the securing of the great volume of business that is promised for that route. These facilities will doubtless be available at the opening of next season.

Considering the previous history of these three established routes, it is more surprising

that the Buffalo route should be so heavy a loser of trade this season than that the Georgian Bay route should be so heavy a gainer. As the St. Lawrence route, with the completion of terminal equipment, will have the greatest advantage next season, it stands to reason that the Buffalo route will be harder hit than will the Georgian Bay route. The result must be to throw the bulk of the through trade to Canadian routes in the near future. Of the two projected routes for competition with the three established routes, that of the air line from Collingwood to Toronto has considerable advantage in that it can be constructed & put in operation in a year's time & have a good start in establishing business. The other route, that of the ship canal from Chicago to the Gulf of Mexico, is one that is not likely to be in operation for at least 10, & probably 20 years, such is the magnitude of the undertaking.—Toronto Globe.

Maritime Provinces & Newfoundland.

H. M. Whitney says nothing at all has yet been done about establishing a shipbuilding plant in Cape Breton.

The negotiations which were in progress for the absorption of the Yarmouth Steamship Co. by the Dominion Atlantic Ry. Co. are said to have fallen through, & a bitter rate war is in progress between them.

At a meeting of the stockholders of the Frontier Steamboat Co., at Calais, Me., recently, it was resolved to close up the business. The stockholders will get about \$2 a share, par value of which was \$10. A new company will be organized & new stock issued at that rate to those who wish to invest. Heavy losses have been sustained by the burning of boats, as well as competition of steamers & railway.

A wooden steamer is being built at Dartmouth, N.S., to run to the Magdalen Islands in conjunction with another one recently purchased in England. Other shipbuilding in Nova Scotia this spring includes a barkentine 113 ft. keel, 30 ft. beam, 12 ft. deep, & 299 tons register, called the D. C. Mulhall, built for trade to Brazil, & classed 13 years in the American Record; also a vessel 131 ft. long, & to measure about 340 tons, now on the stocks. The two latter vessels are built by A. W. Hendry, Bristol.

The Nova Scotia Legislature recently pass-

ed an act to encourage shipbuilding & manufacturing. It provides that, "on & after May 1, 1901, all machinery, stock in progress of manufacture & manufactured, plant & tools in actual use in any establishment in the province, established for the manufacturing of ships of iron or steel, or any combination of metals of like character, or for the manufacturing in iron or steel, shall be exempt from taxation for any purpose excepting for school, sewer, or water rates, but said manufacturing establishment shall pay in lieu thereof a license fee equal to 1% of the assessed valuation of its real estate. All ships or shares in ships of iron or steel or any combination of metals of like character built & registered in the province, shall be exempt from taxation for any purpose whatsoever for 10 years from the time this act shall come into force in any town, city or municipality."

H. L. Chipman who, as announced in our last issue, has been appointed Manager of the Canada Atlantic & Plant Steamship Co., remains in Halifax, where he has hitherto been Superintendent, the general offices being removed from Boston to Halifax. In a recent interview he said:—"We are looking forward to a very large business. There will be a very large travel to Cape Breton particularly. That part of the province has always been popular among tourists, & has had increasing attention paid it each year; but I have no doubt that this summer the number going in that direction will be even larger, as so many are attracted thither on account of the great work which is going on in Sydney in preparation for the commencement of the iron industry there. Sydney has become famous in the U.S. during the past year, & a large class of the U.S. public, having heard something of it, are anxious to go there & see what is going on, & whether there may be any further openings."

In a recent interview, Mr. Black, of Pickford & Black, gave the following information about the firm's new service between Canada & the West Indies. He said:—"There will be one steamer sailing every fortnight from Halifax on the Demerara route. The steamers on alternate fortnights will make slightly different itineraries. One sailing from St. John, N.B., will call at Halifax, Bermuda, St. Kitts, Montserrat, Antigua, Dominica, St. Lucia, Barbados, St. Vincent, Grenada, Tobago, Trinidad, arriving finally at Demerara. On her return she will call at the same ports.

The steamer sailing the following fortnight from St. John will come to Halifax & call at Bermuda, St. Lucia, Barbados, Trinidad & Demerara, & coming North will call at St. Vincent, Barbados, St. Lucia, Dominica, Antigua, Montserrat, St. Kitts, Bermuda, & finally arrive at St. John again to resume her trip back to the West Indies via Halifax. The steamers on this service will have the uniform speed of 12 knots an hour. The Duart Castle & the Taymouth Castle are now in the old country being refitted with new boilers, & having their machinery overhauled, & also having deck accommodation provided for passengers. The total passenger accommodation of these two steamers will be about 50 each, & the other two steamers, the Erna & the Orinoco, both popular steamers, which have been procured for this service, have accommodation for 80 passengers. The freight accommodation of each steamer will be about 15,000 barrels. All the steamers will be handsomely fitted out so that passengers sailing to the tropics & back will have all the comforts possible during a sea voyage."

Province of Quebec Shipping.

Dennis O'Brien has been appointed Superintendent of the Lachine Canal, succeeding the late Mr. Conway.

The St. Lawrence Forwarding Co., of which J. Gow & J. Watterson are owners, has leased 2 steam barges to run between Kingston & Montreal.

The plans & specifications for the elevator, warehouses, &c., to be erected at Montreal by the Connors Syndicate, were approved by the Dominion Department of Public Works, & by the Department of Marine early in June, but work has not yet commenced.

Application has been made for the incorporation under the Dominion Companies Act, of the St. Lawrence Shipping Co., Ltd., with a capital of \$100,000, & headquarters at Quebec. The provisional directors are G. Mac. C. Webster, of Montreal; L. C. Webster, J. C. Kaine & G. O. Seifert, of Quebec.

The \$10,000 placed in the estimates this year for a dock in Hull is said to be an advance payment on \$35,000 which will be expended in providing a suitable dock on the bank of the Ottawa River near the Interprovincial Bridge. When the whole sum is expended a bonded warehouse will be erected, a wharfin-

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Broad and Narrow Gauge Locomotives; Mine and Furnace Locomotives; Compressed Air Locomotives; Steam Cars and Tramway Locomotives; Plantation Locomotives; Oil Burning Locomotives.

Adapted to every variety of service, and built accurately to gauges and templates after standard designs or to railroad companies' drawings. Like parts of different engines of same class perfectly interchangeable.

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THOS. C. IRVING.
Gen. Mgr. Western Canada, TORONTO, ONT.

ger appointed & goods consigned to Hull merchants will be received at the dock.

When the R. & O. N. Co.'s str. *Spartan* was starting down the Lachine Rapids late in the evening of July 1, with a heavy wind blowing, the rudder-chain broke, but the tiller being manned, she was soon brought up to her course. As it was impossible to go through the lower part of the rapids in her crippled condition, she was headed for the north shore & beached on a shoal about 300 yards from shore. In an interview Capt. Grange said that the rudder-chain which broke was practically a new one, having only been used a few times, & he could not account for its snapping. It was certainly very fortunate that the chain broke before the steamer had got into the rapids or she would probably have been dashed upon the rocks & many lives lost. The *Spartan* was got off in a few days without injury.

The Montreal Grain Elevating Co., writing to the Montreal Corn Exchange respecting the increase of rates states that the reduction was for the season of 1899; & that therefore the Co. fails to see any reason for the surprise of the committee at its resumption of former rates; & further that the Co. dissents from the prediction that the charge of $\frac{1}{2}$ c a bush. will divert trade from Montreal, as New York is the only other Atlantic port doing work under similar conditions, & the charges there are double those made in Montreal. The Co. is a strictly private one, receives no aid from the Government, & has no monopoly in the port, & therefore its primary duty in regard to rates must be to look after its own needs in the interests of its shareholders. Moreover, the return to the old rates is but in line with the action of other private companies, which have increased their rates in greater ratio for inland & ocean rates.

Ontario & the Great Lakes.

The Lake Ontario Navigation Co.'s str. *Argyle* is making two trips weekly from Toronto to the Thousand Islands, touching at Charlotte, N.Y., both ways.

Under the work now in progress at Port Colborne the whole entrance to the harbor will be deepened, the harbor enlarged & additional protection works built.

The str. *Seguin*, owned by J. B. Miller, of Toronto, lumber laden from Owen Sound for Chicago, went aground one mile north of Cheboygan, Mich., May 26, but was released by a wrecker without injury.

The str. *Rideau Queen*, built at Kingston for the Rideau River Navigation Co., made her trial trip June 16, showing a speed of a trifle under 12 miles an hour. It is expected

her speed will be about 13 miles an hour when the stiffness of the machinery wears off.

The sailing of the S.S. *Strathcona*, being built at Dundee for the Hamilton & Fort William Navigation Co., was delayed by a fire in the shipyard, the interior fittings of the steamer being destroyed. The S.S. *Donnacona* was launched July 2.

The passenger steamer *Chippewa* was launched at Toledo, Ohio, June 23. She has been built for the Arnold Transit Co., & will run between Mackinac Island & Sault Ste. Marie. She measures 210 ft. over all, 34 ft. beam, & has a draft of 13 ft. It is expected her speed will be 18 miles an hour.

The schooner *Picton*, bound from Charlotte, N.Y., to Belleville with coal, foundered in a gale June 30, about 25 miles n.w. of Sodus Point. Capt. Sibley, her owner & master, his three children, & all hands were lost. The *Picton* was built at Picton in 1867, & was of 160 tons register.

The Toronto, Oshawa & Thousand Islands

long, & 36 ft. beam. She was launched at Rotterdam in 1890 for the Newcastle coal trade. Her speed is 10 knots, & she has a registered tonnage of 952 tons. The second of the Co.'s steamers to come out was the *Paliki*, of Sunderland, Eng., a typical tramp ocean steamer. Her hull is steel, painted black, with a brown stripe. The engines, boilers, & one cabin stand amidship. The captain's apartments, the pilot-house, & chart-room are well up forward. The boat has 2 spars, & 4 life-boats.

A kind of insurance, new to the lakes, has come with this season, & may be widely adopted by vessel-owners who desire to eliminate the question of chance as much as possible from the business. It is the insurance of prospective profits against loss by reason of accidents or disaster. The *Columbus* & the *Manitou* are so covered. Ships must be out of service at least a week before being entitled to payment. This is to cut off minor claims, whose adjustment costs the

underwriters so much money. A fixed amount per day is to be paid after the one week as long as the ship is disabled. With the *Columbus*, the highest possible claim for the season would be \$80,000. Of course, the insurance is placed in London, where the professional underwriters are always ready to take any kind of a risk. For a long time vessel-owners have been in the habit of insuring their freight for a trip, but so far as known this is the first time on the lakes that the profits of the entire season have been covered by insurance. It is believed that owners of freight steamers will take out similar policies next year.

One of the greatest surprises in the history of the Sault Ste. Marie canals came in May, when the freight tonnage reached the enormous

total of 4,092,397 net tons, breaking all previous records. Only once before has the tonnage for a single month reached the 4,000,000 mark, viz., in July, 1899, when, 4,024,789 tons were passed through the canals, & May exceeded that by 67,608 tons. Coming so early in the season this increase is surprising to a degree that vesselmen are inclined to raise their 30,000,000 prediction for the season, & it is freely asserted that the canals will have a record of 5,000,000 tons for a single month before the close of navigation. The excess over last year up to June 1 is 1,657,811 tons. The fact that of this big total 3,267,550 tons were east-bound, & but 824,847 tons west-bound, shows how much more of a producing than of a consuming region the Northwest is. Iron ore, wheat & flour, in the order named, were the three greatest staples shipped out, & this is always the case. Of the commodities shipped into the Northwest, soft coal, with 613,459 tons, heads the list, being greater than all other imports combined. Hard coal is second, with 111,840 tons.



THE HUDSON'S BAY COMPANY'S STEAMER STRATHCONA. (See page 218.)

Navigation Co., Ltd., has been incorporated under the Ontario Companies Act, with a capital of \$100,000 & head office in Toronto. The provisional directors are R. Garland, G. P. Magann, O. A. Howland, T. L. Church, & S. J. Sharp, of Toronto, & A. W. Hepburn, of Picton.

The str. *Meteor*, owned by the Cook Bros. Lumber Co., has been secured by Mr. McKinnon, of Owen Sound, & it is said that after being overhauled & improved she will run on the Sault Ste. Marie route in connection with the str. *City of Windsor*. She was built at Sorel, Que., in 1866. Her dimensions are, length 129 ft. 3 ins.; breadth 24 ft. 3 ins.; depth 10 ft. 6 ins.; gross tonnage 336, register tonnage 181.

Mention was made in our last issue of the arrival in Toronto of the first of the steamers bought in England for the Algoma Central Ry. She is the *Theane*, & is the first craft that has made Toronto from an English port direct. She is a freighter, built of iron, 250 ft.

Yukon & Northern Navigation.

The str. Yukoner, plying on the upper Yukon, was badly injured by fire May 5; damage \$10,000.

A Dawson telegram, dated June 19, said:—"Water is low in the river & lakes. Mails are irregular until the water rises."

It is said the White Pass & Yukon Ry. Co. has practically absorbed the Canadian Development Co., & the John Irving Navigation Co.

The first steamer to reach Dawson this season from the south was the Klondike Corporation's stern-wheeler Flora, which arrived there May 16, with a full cargo of freight & as many passengers as she could accommodate. The steamer Ora, of the same line, followed close behind her.

Capt. J. J. Healy, General Manager of the North American Transportation Co., has resigned his office, according to reports from Dawson, & is going into mining business on his own account. He will first go to Nome, & from there to Siberia, where he has obtained a concession from the Russian Government.

The illustration on page 217 shows a typical Northern river steamer, the Hudson's Bay Co.'s stern-wheeler Strathcona, which plys on the Skeena & Stikine rivers. She is 140 feet long, 30 ft. beam, 4 ft. 9 ins. draught, & has a speed of 17 knots. She is fitted with electric interior & searchlights, steam capstans & other modern improvements. The Co. has another similar boat, the Caledonia, in the same service.

The Yukon Flyer Line, the incorporation of which, with a capital of \$60,000, & headquarters at Victoria, B.C., was mentioned in our last issue, has as its principal stockholders Nels Peterson, of New York City, & James Carroll, of Seattle, with some nominal shareholders in Victoria. Last spring the Co. purchased from the Boston Alaska S.S. Co. two river boats at Dawson, the Governor Pingree & the Phillip B. Lowe, which are running between Dawson & White Horse Rapids.

The Klondike Corporation, in connection with the Alaska Exploration Co., & the Alaska Commercial Co. has announced a through passenger rate of \$180 from Skagway to St. Michael, 1st class, & \$105 2nd class. The local rate from St. Michael to Nome by the steamers of the Alaska Exploration Co. or the Alaska Commercial Co. will be \$20. It is said the 2nd class fare may be further reduced. The same combination has announced a freight rate of \$65 a ton from Dawson to St. Michael, with regular freight tariff from Bennett to Dawson by the Klondike Corporation's boats added. Also a rate of 1c. a pound on freight from St. Michael to Nome. This Skagway rate would make a through rate from Seattle via Skagway to Nome \$225 1st cabin.

Telegrams received at the office of the White Pass Ry., at Skagway, reported two steamers passing Big Salmon bound up, May 17. Many scows also started down the river. The Gleaner is running between Bennett & Atlin. A number of scows have been built by the various mills at the lake-head to carry freight to Dawson, & for sale to those taking goods down the lower river. The new

steamer of the John Irving Co. is completed, & a steam scow of 200 tons capacity, & scows capable of carrying 150 tons are about completed for the railway company. About July 31, Bennett will cease to be headquarters for the Klondike, & White Horse will become the depot. The W. P. & Y. Ry. has about completed its line into White Pass, which is 111 miles from Skagway, connecting there with the upper Yukon steamers, but it will not be until the end of July that the line along the lakes will be completed, & connection will, until then, be made by steamer from Bennett. At White Horse, the railway company proposes to establish large coal bunkers for the Canadian Development Co.'s steamers, with whom an amalgamation was recently made.

British Columbia Shipping.

The plans have not yet been completed for the steamer which the C.P.R. Co. proposes to build to take the place of the str. Aberdeen on Okanagan Lake.

Captain Troup is about to have a steam launch built to replace the Idler. The engines, boiler and steel frame will be built at the Polson Iron Works, Toronto.

F. M. Richardson, of Vancouver, has been appointed Inspector of Boilers & Machineries of Steamboats at that city, vice W. A. Russell, dismissed. Mr. Richardson has also been appointed Inspector of Hulls & Equipments of Steamboats.

A rumor is current among Puget Sound steamboatmen, that when the contract held

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Burlington Elevator, St. Louis, Mo.	Capacity	1,300,000 Bushels
Grand Trunk Elevator, Portland, Me.	"	1,000,000 "
Export Elevator, Buffalo, N.Y.	"	1,000,000 "
J. R. Booth Elevator, Depot Harbor, Ontario	"	1,000,000 "
Cleveland Elevator Company's Elevator, Cleveland, O.	"	500,000 "
Erie R. R. Transfer & Clipping House, Chicago, Ill.	"	100 cars in 10 hrs.
Manchester Ship Canal Co.'s Elevator, Manchester, Eng.	"	1,500,000 "
Burlington Elevator Co., Peoria, Ill.	"	500,000 "
Canada Atlantic Railway Elevator, Coteau Landing, Que.	"	500,000 "
Northern Grain Co., Manitowish, Wis.	"	1,350,000 "
Union Elevator, East St. Louis, Ill.	"	1,100,000 "
Montreal Warehousing Co.'s Belt Conveyor System	"	"

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C. P. R. LANDS.

The Canadian Pacific Railway lands consist of the odd-numbered sections along the Main Line and Branches, and in Northern Alberta and the Lake Dauphin District. The Railway Lands are for sale at the various agencies of the company in Manitoba and the North-West Territories at the following prices:

Lands in the Province of Manitoba average \$3 to \$6 an acre.

Lands in Assiniboia, east of the 3rd meridian, average \$3 to \$4 an acre.

Lands west of the 3rd meridian, including the Calgary District, generally \$3 per acre.

Lands in Northern Alberta and the Lake Dauphin District, \$3 per acre.

TERMS OF PAYMENT.

The aggregate amount of purchase money and interest is divided into ten instalments, as shown in the table below; the first to be paid at the time of purchase, the second two years from the date of purchase, the third in three years, and so on.

Interest on the outstanding purchase money is payable in one year, except in case of an actual settler who breaks up at least one-sixteenth of the land within that time. No rebate of interest is allowed on hay or grazing lands.

The following table shows the amount of the annual instalments on a quarter section of 160 acres at different prices under the new conditions:

160 acres at \$3.00 per acre, 1st instalment	\$71.90, and nine equal instalments of \$60.
160 acres at \$3.50 per acre, 1st instalment	\$83.90, and nine equal instalments of \$70.
160 acres at \$4.00 per acre, 1st instalment	\$95.85, and nine equal instalments of \$80.
160 acres at \$4.50 per acre, 1st instalment	\$107.85, and nine equal instalments of \$90.
160 acres at \$5.00 per acre, 1st instalment	\$119.85, and nine equal instalments of \$100.
160 acres at \$5.50 per acre, 1st instalment	\$131.80, and nine equal instalments of \$110.
160 acres at \$6.00 per acre, 1st instalment	\$143.80, and nine equal instalments of \$120.

DISCOUNT FOR CASH. If land is paid for in full at time of purchase, a reduction from price will be allowed equal to ten per cent. of the amount paid in excess of the usual cash instalment.

Purchasers paying any instalment, or more, one full year before the date of maturity, will be allowed a discount on the amount of the instalment or instalments so paid at the rate of six per cent. per annum.

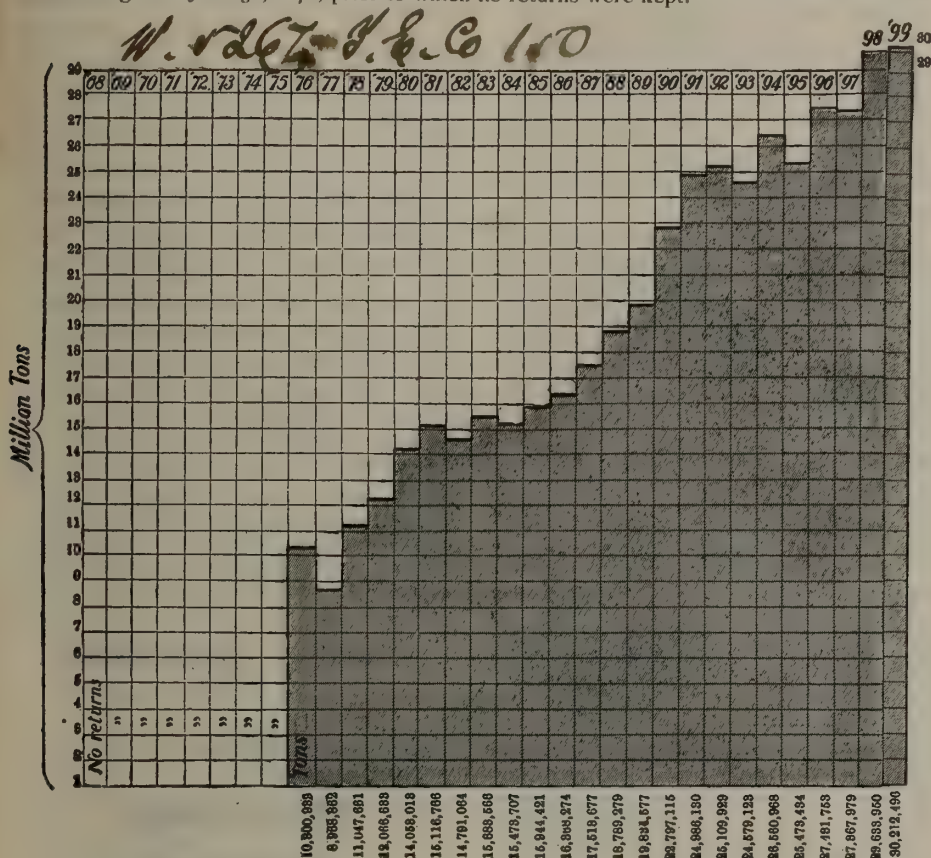
Interest at six per cent. will be charged on overdue instalments.

Write for maps and full particulars.

L. A. HAMILTON, Land Commissioner,
F. T. CRIFFIN, - Asst. Land Commissioner,
WINNIPEG.

COASTING TRADE OF CANADA.

The following diagram shows the tonnage of vessels, British & Foreign, employed in the coasting trade, which arrived at & departed from Canadian ports in each year ended June 30, commencing with June 30, 1876, prior to which no returns were kept.



by the Pacific Coast Steamship Co., for carrying the C.P.R. freight to San Francisco, which is no small item, expires, the Co. does not intend to renew the contract.

The Manchester Chamber of Commerce recently resolved, upon petition from the Yokohama, Hiogo & Osaka Chambers of Commerce, to urge the British Postmaster-General to renew the Imperial subsidy to the Canadian Pacific Royal Mail service from Vancouver, & to secure fortnightly sailings by that route to the Far East.

Notices to Mariners.

The Dominion Department of Marine has issued the following notices:

No. 27, May 15. Ontario. 1, Lights at Point Pelee. 2, United States, Great Lakes, Buoys in Niagara River. 3, Color of Buffalo south pier lighthouse changed. 4, Conneaut range lights increased in intensity. 5, Mamajuda range rear light station. 6, Grassy Island south channel range rear light station. 7, Isle Aux Peches range beacon lights. 8, Duluth harbor entrance.

No. 28, May 16. Prince Edward Island. 1, Discontinuance of red sector in Knight Point light. 2, New Brunswick, fog bell at Head harbor light station. 3, Nova Scotia, Lurcher shoal buoy replaced.

No. 29, May 19. Quebec & Maritime Provinces. Improvement in Gulf signal service.

No. 30, May 25. Ontario lighthouse division. Aids to navigation at the upper entrance to the Soulages canal.

No. 31, May 28. Quebec. 1, Upper Traverse pier. Additional particulars. 2, Change in color of St. Thomas range lights. 3, Change in color of Marmen rock & Demers rock buoys. 4, Change in Vache patch buoy.

No. 32, May 29. Ontario. 1, Fog bell at

Toronto east gap front light. 2, Resumption of Michael point light. Seguin bank buoy.

No. 33, June 4. Nova Scotia. 1, Northwest ledge bell buoy in position. 2, Lunenburg whistling buoy replaced. 3, Removal of wreck off Low point.

No. 34, June 4. Ontario. 1, Port Dalhousie main light. 2, Names on Lake St. Louis lightships. 3, United States, Great Lakes, Ogdensburg light station. 4, Fort Niagara light station. 5, Erie range no. 1 light station.

No. 35, June 9. British Columbia. 1, Shoals west of Zero rock. 2, Cordova bay. 3, Shoals west of Darcy island. 4, Extent of shoal at Walker rock. 5, Empire of Japan.

No. 36, June 13. Ontario. 1, Midland range light. 2, Dredging at Port Colborne. 3, United States, Great Lakes, Provisional light at Russell Island.

No. 37, June 15. Nova Scotia. 1, Black Rock buoy. 2, Canso harbor fairway buoy. 3, Wreck of Annie L. Taylor removed.

No. 38, June 18. Prince Edward Island. 1, Improvements in Big Mimingash range lights. 2, Buoy off Indian point lighthouse.

No. 39, June 21. Quebec. 1, Change in position of ship channel buoy no. 23 Q. 2, Fog alarm at Carleton light station. 3, Fog alarm at Bay St. Paul light station. 4, Illuminating apparatus of river lighthouses. 5, Shape of Pointe du Lac lighthouse. 6, Shape of Contrecoeur front range lighthouse.

No. 40, June 22. Ontario. 1, Temporary lights at Port Burwell. 2, Rock north of Clapperton Island. 3, United States, Great Lakes, New buoy at Detour. 4, Wreck in river Detroit buoyed. 5, Buffalo breakwater (n. end) light station.

No. 41, June 29. Nova Scotia. Beaver harbor bell buoy.

No. 42, June 29. Prince Edward Island. Change in range lights at Cascumpec.

C.P.R. Company's Telegraph.

In our last issue we gave some particulars of the removal of the head office & the Montreal local office from the corner of Hospital & St. Francois Xavier streets to 49, 51 & 53 St. Francois Xavier street, where the work will be carried on while a modern building is being erected on the old site. The following is condensed from an account given by a correspondent of the Telegraph Age: "The wires enter the temporary office by 6 cables. Fifty-two of the more important wires and all dynamo leads were legged from the new to the old office. It is expected that the present quarters will be occupied for only a year, so that the fittings are not at all elaborate, although electrically perfect. The wiring is all done with Kerite cables & Kerite or Okonite wire; all the tables in the old office were transferred with the instruments in place; cables were laid in the new office to accommodate each table, whether it contained multiple or single instruments, & underneath each table a row of binding posts was arranged & connected to correspond with the endings of the cables in the new office, so that when one table was released the wires were disconnected leading to the floor ducts, the table with all its paraphernalia was lowered to the street, & in turn hoisted into the fourth story of the new office. It was only a few moments' work to connect the cables to the binding posts and transfer the wires which are worked on that table by plugging on at the switch in the new office & opening the legs leading to the old office. The operators followed their tables, the chief operator released the wires in the old office, & his assistant located and manned them in the new. Preparations were made in the forenoon, & three tables moved. After lunch the first wire was transferred, & at 4 o'clock every wire was working in the new office & the old operating room was deserted. At 6 o'clock every table was in place. There are 5 sextettes, 5 quartettes, 2 tables for 5 city wires, & 1 table accommodating 6 half sets of repeaters. A 4-ohm sounder is being introduced on the sending side, of multiple sets, in series with the pole-changers or transmitters, & in a resonator at the left of the sender. This is a great boon, for it not only improves the quality of Morse transmitted, owing to the fact of being able to hear one's own sending, but prevents in a great measure that strain on the wrist through over-exertion trying to make the signals carry, particularly on long circuits. Although the temporary office is small, it is so clean, bright and airy that all are quite satisfied with it, & anxiously look forward to the occupation of one of the most modern operating rooms in a year from this date."

The contract for the new C.P.R. Telegraph building has been awarded to Labelle & Payette, who erected Place Viger Station, & who are constructing the additions to the headquarters & station buildings on Windsor street. The contract includes the demolition of the old building. The plans of the new building have been prepared by Hutchison & Wood, architects. The site of the old offices will form part of the property upon which the new building will stand. It will have a frontage of nearly 100 ft. on Hospital st., 45 ft. on St. Francois Xavier, 51 ft. on Exchange court, with a total height of 8 stories, or 116 ft. from the sidewalk to the cornice. The two lower stories are to be built of New Brunswick sandstone, while mottled pressed brick, with trimmings of the same kind of stone, will enter into the construction of the 6 upper stories. The building will be a skeleton steel construction, & fireproof throughout. The ground floor will be occupied by the C.P.R. Telegraph, & while the main entrance will be on Hospital st., the telegraph office will have an entrance on

the corner of Hospital & St. Francois Xavier, with a second for employees & messengers on the last named street. It is probable that the Montreal Club will find a home on the 7th story, & the operating room of the telegraph will be on the 8th. The other portions of the building will be let as offices. The contract requires the completion of the building at the beginning of May, 1901.

Manager Kent recently made an inspection trip, from Montreal to the Pacific Coast, on returning from which he said:—"When the season's work is finished we will have a new line between Laggan & Fort William. We have been doing so many miles each year, & now we have completed that distance besides accomplishing several hundred miles of renewals on the Pacific division. Additional wire facilities to the extent of 1,000 miles will be provided this year to meet the increasing demands of the trade. We have also spent a considerable sum of money in chopping trees along the lake lines in the Kootenay district, for the purpose of preventing trees falling on the wires. We have put up a new wire between New Denver & Nelson. This will allow us to work the Duplicate system from Vancouver to Nelson and Rossland, and so double our present facilities in the district. The wires of the Manitoba & Northwestern Rys. have been extended into Winnipeg, thus giving a direct wire service between Winnipeg and all points on the Northwestern branch."

Telegraph & Cable Matters.

The Western Union Telegraph Co. has declared its regular quarterly dividend of 1¼%, payable July 16.

The Commercial Cable Co. recently declared its regular quarterly dividend of 1¼%, payable June 2.

It is proposed to use the Edison phonoplex system between Juneau & Skagway, Alaska, laying a cable 100 miles long.

A telegraph line is proposed from Syria to Heijaz. It will give access to that portion of Arabia, thus bringing Mecca & Medina into

communication with the world. The line would follow the old pilgrimage route to Mohammed's shrine at Mecca; the total length would be 931 miles.

Brigadier-General Greely, Chief Signal Officer of the U.S., has directed the establishment of wireless telegraph stations in the harbor of San Francisco & in Puerto Rico & the Philippines. In New York harbor it is possible that the wireless telegraph system may take the place of the cable connecting Fort Hamilton & Fort Hancock. This cable was recently found to have been cut in 11 places by anchors.

Col. A. B. Chandler, president of the Postal Telegraph-Cable Co., returned to New York recently from an extended trip to the Pacific Coast much benefited in health from his long relaxation from business. He has now gone to his country home in Randolph, Vt., his native place, where he will spend the summer. It is believed that he will be able to resume active business in the fall with his health wholly restored.

The Dominion Government has let a contract for the construction of a cable to be laid from Point aux Esquimaux, on the north shore of the Strait of Belle Isle to Belle Isle. It will be laid by the Government str. Newfield, & the work is expected to be completed by the end of September. The land line along the north shore of the St. Lawrence is being extended from its former terminus at Big Romaine, 628 miles from Murray Bay, a further distance of 315 miles, to opposite Belle Isle, where connection will be made with the cable.

No official information has been given out lately about the progress of construction of the Government telegraph line from Quesnelle to Atlin, B.C. In May, Superintendent Charleson, who was then in Skagway on his way to Atlin & Dawson, said: "We expect to have the line through from Atlin to Telegraph Creek, 180 miles, early in June, & to have the entire line completed to Quesnelle, thus giving connection with the outside world, in October. From Quesnelle we shall run south to Ashcroft, 220 miles, over the present government wire, and from there gain

entrance to Vancouver over the wires of the C.P.R. Telegraph."

Sir William Preece, electrician of the General Post Office of Great Britain, gave an interesting lecture in London recently, before the Institution of Civil Engineers, upon the latest developments of electricity, & Marconi's numerous experiments. Sir William acknowledged that wireless telegraphy had made small progress, a circumstance which he attributed to the fact that there is no commercial business in the invention. The interest in wireless telegraphy appears to have diminished in London, & Sir William's poignant remarks will not give much further encouragement to those few who are so closely interested in Marconi's experiments. It may be remembered that Sir William assisted Marconi when he first took his primitive instruments to England.

The case of F. Lenchter against the Western Union Telegraph Co., the Montreal Telegraph Co., and the Great Northwestern Telegraph Co., praying that the agreement between the companies of Aug. 17, 1881, might be set aside, was heard recently by Judge Smith, in the special term of the Supreme Court of New York State, at St. George, Staten Island. The plaintiff & G. D. Perry, Secretary of the G.N.W. T. Co., were the only witnesses called for the case, & T. F. Clark, Vice-President of the W.U.T. Co., & Ross-Ross, secretary of the Montreal Tele-

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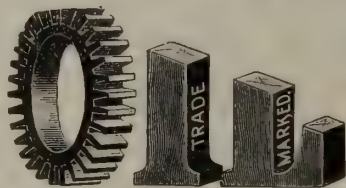
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graph Co. were called for the defence. It was finally agreed that counsel might submit briefs on the question whether assuming bad faith on the part of plaintiff he was, notwithstanding, entitled to question the validity of the agreement. Erastus Wiman was present during the hearing.

On June 1, 1898, the Postal Telegraph-Cable Co. inaugurated the plan of paying its operators on some of the heaviest circuits for the actual work which they handled over and above what is considered a proper day's work. That is to say, the Co. established as a minimum basis of a day's work for an operator at New York, working one of the Boston wires, for instance, the exchange of 300 messages; & for every additional message handled above that number the operator was to receive an extra compensation of one cent each. At the same time it was understood that the operator had the privilege of stopping (if he so desired) when he had reached the 300 message limit, & a full day's work therefor would be credited to him as his regular salary. The idea of the Co. was to work the circuits between the busy centres to their fullest capacity. At the outset some doubt was expressed as to the advisability of the change thus instituted, many believing that its adoption would have a tendency to develop hardships of various kinds. After two years, however, during which time the system has been carefully tested, instead of any burden following its trial, it appears, on the contrary, to be growing in favor among the members of the craft. —Telegraph Age.

Telephoning on Telegraph Lines.

Communication between telegraph linemen at work on prostrated or deranged telegraph circuits, especially when the trouble should be at points remote from established telegraph offices, & the main telegraph office, or the next nearest telegraph station, has always been a difficulty which up to the present time has not been overcome to any appreciable extent. When the lineman, in addition to his ability to climb poles & make a good splice or connection, possesses the ability to send & receive "Morse," there has been little trouble, as such linemen were always provided with pocket relays and keys, & by cutting in or "tapping" a wire, they could communicate with the various offices on the circuit. By this means much time was saved, & a lineman was spared a long journey, sometimes afoot to the nearest office, where an operator was stationed, & where he could make known his wants or receive instructions. Very few linemen understand the Morse system sufficiently well to operate the wires to their benefit, & therefore, any method which would tend to place them in communication with the offices or officers, & which did not require a skilled operator, was a great desideratum.

Chief Operator Hargrave, of the Postal Telegraph Co., New Orleans, for some time past has entertained the idea that he could utilize the telephone for this service, & in a quiet way, has been pursuing his studies & theories. Recently he made a number of most interesting & successful experiments in his method of composite telephone & telegraph service, in connection with Manager Roberts, of the Postal Telegraph Co.'s Mobile office. A modification of Van Rysselberghe's system of simultaneous telegraphy & telephony was tried over experimental circuits with great success. This system consists in bridging over two telegraph wires which are being worked as regular Morse circuits, with a telephone set at each end. The two circuits are then worked independently as telegraph circuits, & at the same time were talked over through the 'phones. A number of different arrangements were tried successfully.

It is not the intention of the Postal Co. to

introduce the telephone in a commercial way at all, but it expects to utilize the 'phone in communicating with its linemen along its route, & thus greatly facilitate & expedite the repairing of its lines in times of wire trouble. These linemen not being operators they can only be communicated with direct in this manner. The Postal hopes to greatly improve its service & materially decrease delays to business in thus being able to more quickly have trouble to their wires repaired. By this arrangement the linemen can be communicated with by telephone over a wire being worked as a Morse circuit, & in no way interfering with the latter. In this system two Morse circuits, or, rather, the two halves of two separate Morse circuits, are used to constitute one telephonic circuit, and yet not interfere with the perfect working of each of the Morse circuits independently.

Besides being of great practical utility in facilitating the work of the linemen, the experiments proved that two circuits could readily be made into three without the addition of any more wires & without interfering with each other. The conversation with Mobile was kept up without trouble, & at the same time Morse instruments at each end were transacting the regular business. The experiments have thus far proven very successful. —Telegraph Age.

Columbia Telephone & Telegraph Co.

The Columbia Telephone & Telegraph Co., which was formerly owned in Spokane, Wash., is now owned in Canada, its headquarters being at Grand Forks, B.C. Its officers are:—President, W. B. Davey; Vice-President, J. B. Donald; Treasurer, A. Miller; Secretary, C. W. Davey; General Superintendent, A. S. Griswold. The Co. has 130 miles of metallic circuit copper telephone line & operates 3 exchanges in Rossland, Grand Forks & Greenwood, with about 400 telephones. It has 19 offices on its long distance lines, viz., Rossland, Sheep Creek, Cascade, Gilpin's, Grand Forks, Columbia, Lime Creek, Eholt, Rathmullen Mine, B.C. Mine, Oro de Nero Mine, Summit City, Phoenix, Greenwood, Anaconda, Boundary Falls, Midway, Rock Creek & Camp McKinney. The same stockholders control the Spokane & B.C. Telephone Co., giving connection between Boundary district, B.C., & Spokane, Wash. Its exchange at Republic, Wash., has 125 subscribers. The same parties have an application to the B.C. Legislature pending to incorporate a company to construct & operate telephone & telegraph lines within & throughout all the cities, towns, municipalities & districts of the mainland of B.C. The following further particulars are condensed from a local paper:—

The Columbia Telephone & Telegraph Co. is steadily extending its operations & becoming in an increasing degree a formidable competitor for the telephone business of the Boundary country. Construction was commenced May 19, 1899, & was continuously proceeded with until wires had been stretched from the International Boundary line near Cascade through Grand Forks, thence via Niagara & Eholt to Greenwood & on to Boundary Falls, Midway, Rock Creek & Camp McKinney. Later it secured connections with Rossland & Spokane, & so gave to Midway enlarged facilities for the transaction of business. Some time ago the Columbia Co. acquired the system and business of the Spokane & B.C. Telephone Co. Recently it took over the lines & business of the Boundary Creek Telephone & Telegraph Co. which had local exchanges at Midway, Greenwood & Phoenix. As the Columbia Co. already had local exchanges at Rossland, Grand Forks, Columbia, Greenwood & Republic, Wash., it now has them in seven towns, & too has direct connection with Spokane,

Bossburg & Bolster, across the Boundary line, & as well with the principal mines in the Rossland & Boundary districts. It is now operating about 425 miles of line, a total which makes a very creditable showing as the result of the past year's work. It will further extend its system as occasion calls for it, the intention of the management being to keep pace with the development of the country as business shall warrant it. The Co. purposes eventually enlarging its operations until these cover the whole of the Province, & with this end in view it worked with the promoters of the Western Telephone Co. in endeavoring to obtain from the Legislature last session the requisite powers, but the wrecking tactics of Jos. Martin defeated its efforts & so caused delay. It will however renew its endeavors to secure a charter that will give it rights & privileges sufficiently comprehensive to admit of it carrying out its plans in this direction.

The Bell Telephone Company.

The Toronto City Council recently asked the City Solicitor to report as to whether the Bell Co. has the power to increase its rates in the city. Following is the report:—"On Sep. 17, 1891, an agreement was entered into between the Bell Telephone Co. & the City whereby the City agreed to give the Co. the exclusive right for carrying on telephone business in Toronto for five years from the date of such agreement, & the Co. agreed that it would pay the City 5% per annum on the gross receipts for telephone service within the city limits. The Co. also agreed that from Sep. 1, 1891, the rate for telephones for dwelling houses should be \$25, & for business houses \$45 a year. This agreement ended Sep. 17, 1896, & the Co., I understood, has declined to renew it.

"In 1892 an act was passed by the Dominion Parliament increasing the capital stock of the Co. to an amount not exceeding \$5,000,000. The third section of the act expressly states that the existing rates shall not be increased without the consent of the Governor-in-Council. The Co. applied to the Governor-in-Council last year to increase the rates in Toronto & elsewhere. The application was opposed by not only Toronto but other cities & towns, & no judgment has been given on such application. As in the city of Toronto the rates for a telephone were \$25 for a private house, & \$45 for a business, upon July 9, 1892, when the said act was passed, & the Governor-in-Council has not permitted such rates to be increased, I am of opinion that the Co. cannot legally raise these rates in the City of Toronto beyond those prices."

The City Solicitor's opinion, however, does not touch the main point at issue. The Co. is not raising its rates to subscribers who had instruments before its new tariff was promulgated, but is charging a higher rate to new subscribers who are over a certain distance from the exchange. Under the agreement of 1891, the City gave the Co. valuable consideration in the way of a guarantee from opposition & certain street rights. The Co. in return made a reduction from its regular rates & abolished the usual extra mileage charge. This agreement having expired & the city no longer giving any consideration to the Co., the Co. has partially reverted to the state of affairs prior to the agreement. The old rates have not been restored, nor are existing subscribers being touched, but the old extra mileage charge has been reverted to for new subscribers requiring lines more than one mile in length from the exchange. The true measure of cost to the subscriber is the cost per call, not the annual subscription, & as the average daily use of the telephone by subscribers has at least doubled in the last 10 years subscribers are in reality getting telephone service at about half of its cost 10 years ago.

ASSESSMENT SYSTEM.

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Cost to Join the I. O. F.

(For \$1,000 Mortuary Benefit.)

Initiation fee (minimum).....	\$1 00
Certificate fee.....	1 00
Registration fee.....	1 00
Medical Examination fee.....	1 50
Total minimum cost.....	\$4 50

(For more than \$1,000 Mort. Benefit.)

Cost to take \$2,000 Mort. Benefit..	\$6 00
" " \$3,000 " " "	7 00
" " \$4,000 " " "	9 00
" " \$5,000 " " "	10 00
Sick benefits, when required, cost extra.	

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- 1.—Social and Fraternal Privileges of the Court Room.
- 2.—Free Medical Attendance by Court Physician where not dispensed with by Court by-law; also trained nurses in certain cases.
- 3.—A Sick Benefit of \$3 to \$5 per week, subject to provisions of the Constitution and Laws of the Order; optional, and when taken costs extra.
- 4.—A Total and Permanent Disability Benefit of one-half of face value of policy, with exemption from further payment of premiums or Court Dues.
- 5.—An Old Age Benefit consisting of exemption from payment of premiums and Court dues after age 70.
- 6.—An Old Age Disability Benefit of one-tenth of face value of policy payable yearly for ten years, on being declared totally and permanently disabled by infirmities of age after the seventieth birthday.
- 7.—An Old Age Pension payable during disability, which may be taken as a substitute for the Old Age Disability Benefit.
- 8.—A Burial Benefit of \$100 at death of a Pensioner.
- 9.—A Funeral Benefit of \$50 at death of a member enrolled in Sick and Funeral Benefit Department.
- 10.—The Mortuary Benefit of \$500, \$1,000, \$2,000, \$3,000, \$4,000 or \$5,000.

The Members, the Benefits, and Their Assurance

At 31st December Each Year.

Year.	Total Membership.	Benefits Paid.	Total Surplus.	Surplus per Capita.	Death Rate per 1,000.
1881	1,019	\$ 1,308 00	\$ 4,568 55	\$ 4 48	4.50
1882	1,134	12,058 86	2,967 93	2 61	11.00
1883	2,216	9,493 78	10,857 65	4 91	4.73
1884	2,558	13,914 35	23,081 85	9 01	4.23
1885	3,642	26,576 99	29,802 42	8 18	7.76
1886	5,804	28,499 82	53,981 28	9 30	4.85
1887	7,811	59,014 67	81,384 41	10 44	5.78
1888	11,800	89,018 16	117,821 96	9 98	6.43
1889	17,349	116,787 82	188,130 36	10 84	5.85
1890	24,604	181,846 79	283,967 20	11 54	5.18
1891	32,303	261,436 21	408,798 20	12 65	6.40
1892	43,024	344,748 82	580,937 85	13 49	6.25
1893	54,484	392,185 93	858,867 89	15 76	5.47
1894	70,055	511,162 30	1,187,255 11	16 94	5.47
1895	86,521	685,000 18	1,560,734 46	18 03	5.67
1896	102,838	820,941 91	2,015,484 38	19 60	5.50
1897	124,685	992,225 60	2,558,832 78	20 52	5.56
1898	144,800	1,176,125 14	3,186,370 35	22 12	5.67

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A. E. Stevenson, 6436 Kimbark Ave., Chicago, Ill.

Or Any Officer or Member of the Order.

The Toronto City Council has been informed that the Co. has no desire to renew its contract with the City on the old terms & that it sees no reason why Toronto subscribers should not pay the same rates as Montreal subscribers.

In reference to the recent changes in the Bell Co.'s tariff for long distance telephoning it may be pointed out that long distance lines were originally single & of iron. Transmission was poor but the distances were short. The 5 minutes unit was then in force. Now long distance lines are double, that is 2 wires instead of 1, & are built of heavy copper, with the result that transmission is good over very long distances. This result has only been accomplished by a very greatly increased expenditure of capital. Safely it may be said that lines now cost three times what they did in early days. As a result of the improved transmission it has been found by actual experience that subscribers are able to do more talking in 3 minutes than in 5 minutes under the old conditions. In order to get a fair return on the greatly increased capital invested the Co. had to either increase the tariff rate or reduce the time unit. As the majority of conversations can easily be condensed into 3 minutes, it is fairer and better to reduce the unit rather than make people pay unnecessarily a higher rate. The 3 minutes unit has been in force east of Toronto for many years & the recent change makes the unit uniform throughout Canada. Coincident with this change of unit the Co. has abolished the non-subscriber charge. This change is of the greatest importance, not only to the mass of people who are not subscribers & who formerly have had to pay a higher rate, but also to the merchants and manufacturers who are receiving orders from non-subscribers. It is needless to say that the cheaper the non-subscriber can speak to the merchant the more chance there is of the merchant receiving his orders. Reduced night rates have been established under which persons can speak between 6 p.m. & 6 a.m. for about half the usual day charge. The slight change in the time unit west of Toronto is much more than offset therefore by the very substantial reductions mentioned. While people only pay for the time they are actually talking it must not be forgotten that it takes on an average about 5 minutes to establish a connection. The Co. therefore gives about 8 minutes use of the line for the rates which it charges.

The Co. is building a metallic line from St. Thomas to Simcoe via Tilsonburg.

The Co.'s office at St. Thomas, Ont. has been remodeled.

Nova Scotia Telephone Co.

At the annual meeting in Halifax June 14, 5,552 shares were represented. Following is a statement of accounts to Jan. 31, 1900:

ASSETS.	
Exchanges and plant.....	\$286,179 88
Stores.....	7,537 78
Stock in other companies.....	21,530 00
Real estate, buildings, etc.....	15,436 40
Amounts due Co.....	3,716 72
Due by agencies, including Halifax.....	7,703 89
Cash on hand and in bank.....	2,147 28
	\$344,251 94
LIABILITIES.	
Capital stock.....	\$200,000 00
Bonds.....	20,000 00
Bills payable.....	1,137 54
Sundry amounts due.....	18,543 96
Depreciation account.....	3,000 00
Dividend 21 payable Mar. 1, 1900.....	3,000 00
Accident reserve account.....	8,902 50
Insurance reserve account.....	9,000 00
Contingent account and sinking fund.....	55,417 99
Profit and loss account.....	25,267 95
	\$314,251 94
PROFIT AND LOSS.	
1899.	
Feb. 1st. By balance.....	\$23,592 63
1900. By net earnings.....	16,675 32
	\$40,267 95

To Dividend paid June 1, 1899.....	\$ 3,000 00
" Dividend paid Sept. 1, 1899.....	3,000 00
" Dividend 20, paid Dec. 1, 1899.....	3,000 00
" Dividend 21, payable Mar. 1, 1900.....	3,000 00
Transferred to sinking fund.....	3,000 00
	\$ 15,000 00

Balance carried forward \$25,267 95

The following directors were unanimously elected: B. W. Chipman, R. Uniacke, C. F. Fraser, C. F. Sise, R. L. Borden, A. C. Cogswell, B. F. Pearson; the latter succeeding the late Dr. Hallett.

Considerable discussion followed with reference to improvements in the service at Halifax, & the opinion was generally expressed that the time had come when a long step in advance should be made. The Co. had delayed in the past out of consideration for the rapid strides in electrical improvements, & had been fully rewarded by the fact that now the relay switch board is an assured success, & a distinct step in advance of the multiple board, & several steps in advance of the board now in use by the Co. Although it would cost probably \$120,000, yet it was thought advisable that a double metallic circuit should be installed throughout the city, & as far as possible the use of the long distance telephone should be encouraged.

Mr. Sise explained that the installation of this board meant an average possible conversation capacity of 3 minutes instead of 5, the reduction in the operating expenses arising from the doing away with the clinch battery cell, & inspection & reduction of operators at the head office.

The stockholders authorized the directors to issue \$100,000 stock of the Co., the same to be first offered to the stockholders at par, the proceeds to be utilized for the improvements above referred to.

General Telephone Matters.

The Edmonton, Alta., Telephone Co. is arranging for night & Sunday service.

The Citizens Telephone & Electric Co., Rat Portage, Ont., is putting up a 2-inch cable for the transmission of power.

A telephone line in which the Bonny River Lumber Co. is said to be interested, is being built between St. Martin's & St. John, N.B.

The Pontiac Telephone Co., with headquarters at Bryson, Que., had its property sold by the sheriff recently to W. McCochan for \$1,700.

The Kinnear's Mills Telephone Co., of Kinnear's Mills, Que., is about to build a line from Thedford Mines to Kinnear's Mills, 12 miles.

The Vernon & Nelson Telephone Co. has been improving its service in the Boundary District, B.C. A fourth wire has been strung between Phoenix & Nelson.

E. H. Boss has resigned the local management of the Bell Telephone Co. at St. Catharines, Ont., to enter the Niagara, St. Catharines & Toronto Ry. Co.'s employ.

The trolley to the Pyramids is not the only example of the penetration of electricity into the everyday life of semi-civilized Egypt, the telephone being right on its heels. The telephone company of Egypt operates from headquarters in Cairo & branches in Alexandria, Port Said, & other towns. Inter-connection, however, has not yet been realized, as the Government has opposed its establishment on the ground that it would diminish State telegraph receipts. However, it is hoped that consent will soon be given for this extension. Telephone girls are not employed in Egypt, & the telephone men have to speak English, French, Italian, Arabic & modern Greek.

Among the Express Companies.

Evangeliste Joly was found guilty, June 14, of stealing \$14,000 from the Dominion Ex. Co., at Joliette, Que., and was sentenced to 9 years in penitentiary.

The Dominion Ex. Co. has withdrawn the restrictions against accepting money in any amount, or notes, drafts & accounts for collection in Joliette, Que., & agents are authorized to accept shipments of any kind for Joliette, to be way-billed at tariff rates.

At St. Catharines, Ont., June 13, Stinson, a former messenger of the Dominion Ex. Co., was tried on a charge of stealing two money packages from the Co., in Dec. last, the jury acquitting him. He was released on bail, to be tried on another charge laid by the Co.

The Western Ex. Co. has opened routes on the Marinette, Tomahawk & Western Ry., between Tomahawk & Spirit Falls, Wis., & the Spirit Falls & Brannon Stage route between Spirit Falls & Brannon, Wis. Offices have been opened at Boston, Mich; Balfour & Donnybrook, N.D.; Bay Mills, Brannon, Rockmast & Spirit Falls, Wis.

The Dominion Ex. Co. has opened offices on the C.P.R.'s Columbia & Western Ry. at Phoenix & Midway, B.C. Offices have also been opened in B.C., at Fife, Farrer, Hills, Porteous, Summit, Thrums, Tunnel & Wanklyn; in Manitoba, at Sinclair, Bowsman, Fishers & Keyes; in Ontario, at Folger & Strathcona, & in Quebec, at Bordeaux.

Owing to the extension of the U.S. coasting laws to Honolulu, business originating in the U. S. cannot be taken to Vancouver to be forwarded in British bottoms to Honolulu, & agents of the Dom. Ex. Co. in the U. S. must refuse such business. This does not, however, apply to business originating in Canada or in Europe, destined to Honolulu; this class of business may be accepted and routed via Vancouver, as heretofore.

The traveling auditors of the Great Northern Ry. have been made joint employees of the Great Northern Express. Their duties, so far as the express is concerned, will be to check & transfer offices where the railway agent acts jointly for the railway & the express, & generally look after the accounts of the express at such offices. The G. N. Express retains as exclusive employees three of its traveling agents, whose duties will be to check or transfer the accounts at all exclusive express offices, & as heretofore, solicit & work up business at all places in the territory assigned to them—visiting, when necessary, any of the offices that are joint, & to perform such other duties as may be given them by the General Manager, the Superintendent, or the General Western Agent.

On account of low water, Dominion Ex. agencies at Fort Frances & Mine Centre, Ont., have not yet been established; until further notice, shipments for all points in Rainy River district, including Fort Frances & Mine Centre, should be receipted for & charges collected to Rat Portage, Ont., only.

The Dominion Ex. Co. has placed R. E. Helme, Route Agent, in charge of all offices on main line of C.P.R., west of Moose Jaw, Assa., to and including Medicine Hat, Assa.; offices on Crow's Nest branch, including Fort Steele, & offices on North Star branch, & all offices in Kootenay district south of Arrowhead, B.C. W. J. Kirby, Route Agent, has charge of all offices on main line west of Medicine Hat, Assa., including offices in the State of Washington; Edmonton branch; Macleod branch south of Calgary to & including High River; Arrowhead branch; Shuswap & Okanagan branch; & offices on Okanagan Lake.

The Alaska Pacific Ex. Co. has issued the following circular: This Co. has secured exclusive privileges over the White Pass & Yukon Ry. operating between Skagway and White Horse. We have also arranged for similar service with the Canadian Development Co., a steamer line operating between White Horse (end of rail line) & Dawson City. The C.D. Co. has already placed in service on the upper Yukon 12 steamers,

The Purchasing Agents' Guide

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Aerated Waters E. L. Drewry. Winnipeg.	Groceries The Hudson's Bay Company.	Ships Polson Iron Works. Toronto.
Air Brakes & Fittings Westinghouse Mfg. Co. Hamilton, Ont.	Half Tones Acton Burrows Co. Toronto.	Shovels James Cooper. Montreal. The Fairbanks Co. Montreal. The Hudson's Bay Company. Rice Lewis & Son. Toronto.
Alfalfa E. L. Drewry. Winnipeg.	Hand & Push Cars F. E. Came. Montreal. The Fairbanks Co. Montreal.	Signal House Numbers Acton Burrows Co. Toronto.
Anchors Rice Lewis & Son. Toronto.	Hardware Rice Lewis & Son. Toronto. The Hudson's Bay Company.	Signals Noah L. Piper & Sons. Toronto.
Asphalt James Hutton & Co. Montreal. Rhodes, Curry & Co. Amherst, N.S.	Headlights Noah L. Piper & Sons. Toronto.	Signs Acton Burrows Co. Toronto.
Babbit Rice Lewis & Son. Toronto.	Hose Rice Lewis & Son. Toronto.	Snow Ploughs Rhodes, Curry & Co. Amherst, N.S.
Beams Canada Foundry Co. Toronto.	Illustrations Acton Burrows Co. Toronto.	Spikes Rice Lewis & Son. Toronto.
Blankets & Bedding The Hudson's Bay Company.	Iron Canada Foundry Co. Toronto. Rice Lewis & Son. Toronto.	Station Name Signs Acton Burrows Co. Toronto.
Block & Tackle Rice Lewis & Son. Toronto.	Iron Signs Acton Burrows Co. Toronto.	Steamboats Polson Iron Works. Toronto.
Boat Fittings & Hardware Rice Lewis & Son. Toronto.	Japans McCaskill, Dougall & Co. Montreal.	Steamboat Signs Acton Burrows Co. Toronto.
Boiler Covering Mica Boiler Covering Co. Montreal.	Lager Beer, &c. E. L. Drewry. Winnipeg.	Steam Shovels James Cooper. Montreal.
Bulbines Polson Iron Works. Toronto.	Lamps & Lanterns Rice Lewis & Son. Toronto. Noah L. Piper & Sons. Toronto. The Hudson's Bay Company.	Steel James Hutton & Co. Montreal. Rice Lewis & Son. Toronto.
Bolts Rice Lewis & Son. Toronto.	Launches Polson Iron Works. Toronto.	Steel Castings F. E. Came. Montreal.
Brake Shoes F. E. Came. Montreal. Canada Foundry Co. Toronto.	Life Insurance Independent Order of Foresters. Toronto. Travelers' Insurance Co. Montreal.	Switch Targets Acton Burrows Co. Toronto.
Bridge Numbers Acton Burrows Co. Toronto.	Linoleum and Floor Coverings The Hudson's Bay Company.	Switches F. E. Came. Montreal. Canada Foundry Co. Toronto.
Buckets Rice Lewis & Son. Toronto.	Locomotives Baldwin Locomotive Works. Philadelphia, Pa. Richmond Locomotive & Machine Works. Richmond, Va.	Telegraph Office Signs Acton Burrows Co. Toronto.
Carpets The Hudson's Bay Company.	Lubricators Rice Lewis & Son. Toronto.	Telephone Office Signs Acton Burrows Co. Toronto.
Cars Rhodes, Curry & Co. Amherst, N.S.	Matches The Hudson's Bay Company.	Tires James Hutton & Co. Montreal.
Car Wheels Rhodes, Curry & Co. Amherst, N.S.	Milepost Numbers Acton Burrows Co. Toronto.	Tobacco and Cigars The Hudson's Bay Company.
Castings Canada Foundry Co. Toronto. Rhodes, Curry & Co. Amherst, N.S.	Mohair The Hudson's Bay Company.	Toilet Paper The Hudson's Bay Company.
Chains Rice Lewis & Son. Toronto.	Numbers Acton Burrows Co. Toronto.	Tools Rice Lewis & Son. Toronto.
Cross Arms, Top Pins & Side Blocks The Firstbrook Box Co. Toronto.	Oakum Rice Lewis & Son. Toronto. The Hudson's Bay Company.	Track Jacks Duff Manufacturing Co. Allegheny, Pa. A. O. Norton. Coaticook, Que.
Curtains The Hudson's Bay Company.	Oils Galena Oil Co. Franklin, Pa. The Queen City Oil Company. Toronto.	Track Tools F. E. Came. Montreal. James Cooper. Montreal. Rice Lewis & Son. Toronto.
Cuts Acton Burrows Co. Toronto.	Office Signs Acton Burrows Co. Toronto.	Tramway Equipment J. J. Gartshore. Toronto.
Door Signs Acton Burrows Co. Toronto.	Packing The Fairbanks Co. Montreal.	Trucks The Fairbanks Co. Montreal. Rice Lewis & Son. Toronto.
Dalls The Fairbanks Co. Montreal.	Pipe Covering Mica Boiler Covering Co. Montreal.	Uniform Caps W. H. Coddington. Hamilton, Ont.
Dry Goods The Hudson's Bay Company.	Pipes Canada Foundry Co. Toronto.	Union Couplings E. M. Dart Manufacturing Co. Providence, R.I.
Electric Car Route Signs Acton Burrows Co. Toronto.	Plushes The Hudson's Bay Company.	Varnishes McCaskill, Dougall & Co. Montreal.
Emery Wheels The Fairbanks Co. Montreal.	Pneumatic Tools F. E. Came. Montreal.	Vessels Polson Iron Works. Toronto.
Enameled Iron Signs Acton Burrows Co. Toronto.	Porter E. L. Drewry. Winnipeg.	Waste Rice Lewis & Son. Toronto. Noah L. Piper & Sons. Toronto. The Queen City Oil Co. Toronto.
Engines, Stationary & Marine Polson Iron Works. Toronto.	Portland Cement Rice Lewis & Son. Toronto.	Water Meters Westinghouse Mfg. Co. Hamilton, Ont.
Engraving Acton Burrows Co. Toronto. Toronto Engraving Co. Toronto.	Printing The Hunter, Rose Co. Toronto. The Mail Job Printing Company. Toronto.	Water Tanks The Fairbanks Co. Montreal.
Express Office Signs Acton Burrows Co. Toronto.	Pumps Rice Lewis & Son. Toronto.	Wheelbarrows James Cooper. Montreal. The Fairbanks Co. Montreal. Rice Lewis & Son. Toronto.
Fencing Page Wire Fence Co. Walkerville, Ont.	Rails (New) James Cooper. Montreal. J. J. Gartshore. Toronto. Rice Lewis & Son. Toronto.	Window Blinds The Hudson's Bay Company.
Ferry Signs Acton Burrows Co. Toronto.	Rails (for relaying) James Cooper. Montreal. J. J. Gartshore. Toronto.	Wines and Liquors The Hudson's Bay Company.
Flags Rice Lewis & Son. Toronto. The Hudson's Bay Company.	Rail Saws F. E. Came. Montreal.	Wire & Wire Rope Rice Lewis & Son. Toronto.
Foghorns Rice Lewis & Son. Toronto.	Rope Rice Lewis & Son. Toronto. The Hudson's Bay Company.	Yachts Polson Iron Works. Toronto.
Frogs Canada Foundry Co. Toronto.	Scales The Fairbanks Co. Montreal.	
Gas & Gasoline Engines The Fairbanks Co. Montreal. Northey Manufacturing Co. Toronto.	Semaphore Arms Acton Burrows Co. Toronto.	
Gates Page Wire Fence Co. Walkerville, Ont.	Shafting Rice Lewis & Son. Toronto.	
General Supplies The Hudson's Bay Company.		

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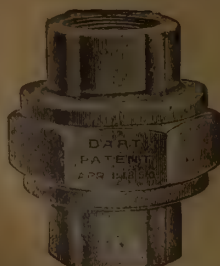
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The Columbia & Western Railway.

The extension of this line from West Robson to Midway, B.C., was inspected on behalf of the B.C. Government by H. B. Smith, M. Inst. C.E., whose reports, which have only just been made public, contain a lot of interesting information about the line. The first report deals with the first section of the line between West Robson & Grand Forks, & it must be borne in mind that it was dated Sep. 29, 1899, when the line was uncompleted & that since that date it has been finished & opened for traffic. Following are extracts:

The West Robson-Grand Forks division of the C. & W. Ry. is an extension westward of the Trail-West Robson division of the same railway. It commences at West Robson, 1,400 ft. above sea level on the south bank of the Columbia River, directly opposite the Columbia & Kootenay Ry. terminus at Robson. From thence it extends westerly along the banks of the Columbia River & Arrow Lake to Brooklyn, 2,750 ft. above sea level, 13 miles from West Robson. From Brooklyn it follows a southerly and westerly course to 22 miles distant from West Robson. Here a tunnel 43,00 ft. long & 3,180 ft. above sea level has been found necessary to reach the valley of Dog Creek. From this tunnel the course is southerly to McRae Creek Pass, 3,990 ft. above sea level, & 30½ miles from West Robson. From McRae Creek Pass the course is southerly & westerly along the valley of McRae Creek to the valley of Christina Lake, 47 miles from Robson. It then follows southerly the valleys of Christina Lake & Christina Creek to Cascade City, 1,650 ft. above sea level, & 54 miles from West Robson. From Cascade City the course is nearly due west along the valley of Kettle River to Grand Forks, 1,700 ft. above sea level, & 67 miles from West Robson. Up to 5 miles from West Robson the railway passes over extensive flats; it then winds along irregular & precipitous & rocky side-hills to Cascade City, where the beautiful & uniform valley of Kettle River is reached, which it follows for 13 miles to Grand Forks. The

railway, therefore, passes over 18½ miles of flats, & 48½ miles of side-hill. The location of the railway, from an economical point of view, has been unusually skillfully made, & leaves little room for improvement without heavy additional expenditure.

necessitated many long & very high timber trestles, several of which could be dispensed with, but only at considerable outlay. The long tunnel, 22 miles from West Robson, at the head of Bull Dog Creek, has been found necessary in order to avoid the circuitous &

much more costly route via Arrow Lake & Dog Creek. In Kettle River valley, the Kettle River is crossed four times. There appear to be no means by which any one of these crossings could be advantageously avoided.

The railway is of standard gauge, 4 ft. 8½ ins. from inside to inside of rail head, except on curves exceeding 4 degrees. The additional width or spread for sharper curves is as follows:—

4 degrees to 6 degrees	¼ of an inch
6 " 8 "	½ " "
8 " 10 "	¾ " "
10 " 14 "	1 ½ " "

The general curvature is light for a mountain railway. Curves vary from 20 minutes to 14 degrees, or from 17,189 to 410 ft. radius, & cover 32,884 miles of the total length. The combined length of tangent is 34,058 miles. The total curvature is, therefore, 49.12% of the total mileage. The curve of most frequent occurrence is 14 degrees. The total number of curves is 563, made up as follows:

Degree.	No.	Length.	% of Whole.	
0 to 1	11	4,088.5	1.16	
1 "	2	45.20	427.0	5.78
2 "	3	44.15	131.0	4.28
3 "	4	54.20	902.2	5.91
4 "	5	55.16	722.2	4.73
5 "	6	42.13	218.7	3.74
6 "	7	49.12	269.7	3.47
7 "	8	26.7	906.4	2.24
8 "	9	31.6	382.0	1.80
9 "	10	13.2	518.1	0.71
10 "	11	57.14	211.7	4.02
11 "	12	13.3	3,457.3	0.98
12 "	13	39.10	273.7	2.91
13 "	14	4.1	1,043.9	0.30
14 "	80	25,076.5	7.09	

Totals...563 173,629.7 49.12

The longest curve is 1 degree & 30 minutes, 2173.3 ft. in length. The longest tangent is 5814.6 ft. in length.

From West Robson to mile 5.4 grades undulate & in no case exceed 0.75 per 100. At mile 5.4 an uniform 2.2 per 100 upward grade, compensated for curvature, begins & continues to the long tunnel at mile 21.9. The grade through the long tunnel rises 1.1 per 100 to mile 22.5. At mile 22.5 an uniform 2.2 per 100 upward grade, compensated for curvature, & broken by a small portion of level grade at mile 24.6, continues to McRae



JAMES DUNSMUIR,
Vice-President of the Esquimalt & Nanaimo Railway & Premier of British Columbia.

The general course is as direct as the rugged nature of the country would permit. Every flat affording suitable grades & alignment has been taken advantage of, & on the side-hills the curvature fits the natural irregularities of the ground with great precision. This has

begins & continues to the long tunnel at mile 21.9. The grade through the long tunnel rises 1.1 per 100 to mile 22.5. At mile 22.5 an uniform 2.2 per 100 upward grade, compensated for curvature, & broken by a small portion of level grade at mile 24.6, continues to McRae

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NEXT ANNUAL MEETING at Montreal, Oct. 16, 1900.

Creek summit at mile 30.2. This is the highest
elevation attained by the railway. From mile
30.2 to mile 30.4 is level. At mile 30.4 a con-
tinuous downward grade to the Kettle River
commences. From 30.4 to 32.6 the maximum
downward grade, compensated for curvature,
is 1.8 per 100. From 32.6 to Kettle River at
mile 53.2, the downward grade, compensated
for curvature, is uniformly 2.2 per 100. From
mile 53.2 to mile 53.6 the grade rises at the
rate of 0.26 per 100. From mile 53.6 to Cas-
cade City at mile 55, the grade, compensated
for curvature, rises uniformly at the rate of
2.2 per 100. From mile 55 to mile 59.3 grades
undulate, the maximum being 0.5 per 100.
From mile 59.3 to Grand Forks at mile 67.2,
grades undulate, the maximum being 1.5 per
100. All grades over 1.5 per 100 are com-
pensated for curvature at the rate of 4 one-hun-
dredths of a foot in each 100 ft. for each de-
gree of curvature, that is to say, that in a 14-
degree curve, having a tangential grade of
2.2 per 100, the grade on the curve is reduced
56 one-hundredths of a foot, which subtracted
from the original grade of 2.2 per 100, leaves
1.66 per 100 as the compensated grade on the
curve. The total rise of the railway from
West Robson to McRae Creek summit is 2,-
590 ft., the total fall from McRae Creek sum-
mit to Kettle River is 2,440 ft., & the total
rise from Kettle River to Grand Forks is 136
ft.

All embankments at formation level are 14
ft. in width, with side slopes of $1\frac{1}{2}$ to 1 in
earth, sand & gravel, & 1 to 1 in loose rock.
On side-hill these slopes reach the flats below
in most cases. In a few instances, however,
the vertical nature of the side-hill has rendered
it necessary to retain embankments by crib-
work or dry stone walls. The toes of all em-
bankments are well above the high-water
mark of the waters adjacent to them, except
at miles 56 & 57, where well-executed rip-rap
has been added as a protection.

All excavations are 18 ft. wide at formation
level with side slopes in earth & sand of 1 to
1, & in rock of $\frac{1}{4}$ to 1. In hard-pan cuts the
slopes have been executed to suit the stability
of the material. All excavations have been
excellently made & present a thoroughly fin-
ished appearance, except where ballasting
material has been borrowed.

There are two places only at which timber
crib-work has been erected for the purpose of
retaining embankments. The rock in the im-
mediate vicinity is decayed, & this is the rea-
son given for their construction. They occur
at mile 47 & are of excellent design. They
are each 60 ft. long & from 12 to 15 ft. high.
The plan of these structures shows inside &
outside batter of walls to be $\frac{1}{4}$ to 1. Each
crib is 7 by 7 ft. inside horizontal measure-
ment, & consists of 12 in. round logs dove-
tailed & box-jointed, & secured with tree-nails
2 in. diam. & 20 ins. long, & with wrought
iron drift-bolts $\frac{3}{4}$ in. diam. & 22 ins. long.
Each drift-bolt penetrates through one log &
at least 6 ins. into the log below.

Rock slopes occur on the steep side-hills of
Arrow Lake, Bull-Dog Creek, McRae Creek,
& Christina Lake. There are 29 in all, vary-
ing from 30 to 270 ft. in length, & from 10 to
40 ft. in height. Combined they cover a total
length of 2,640 ft. The rear wall is vertical,
& the front wall batters at the rate of 1 in 3.
The top of the wall is 3 ft. wide. The filling
behind the wall is broken rock. In all cases
the foundations are on solid rock. The stones

comprising the walls are of large size & are
roughly shaped into rectangular blocks; a
very solid & permanent dry rock wall has thus
been obtained.

Excellent provision for the passage of
streams & surface drainage across the track
has been made by means of log culverts, bal-
last boxes, rock & log drains. The total
number of log culverts is 156. They are of
the usual log culvert pattern, having solid
cedar or fir walls & covering, secured by
tree-nails & drift-bolts, the whole resting on
round sills in pairs from 5 to 8 ft. apart, the
spaces between the sills being filled flush with
broken rock. The workmanship on these
structures is excellent. Rock drains, log
drains, & ballast boxes are of the usual de-
sign.

The road-bed from West Robson to Grand
Forks has been three-quarters ballasted with
material either hauled considerable distances
or borrowed from the faces of adjacent exca-
vations & embankments. For a new railway
the ballasting so far done is very much super-
ior to, & greatly in excess of, that usually
found. Much more, however, will require to
be done to place the road-bed in standard
condition. The hauled ballast is excellent,
being either coarse gravel or broken rock,
but the greater portion of that obtained from
slope faces is not ballast but merely earth
filling.

There are five tunnels. All have been care-
fully pierced, & present unusually uniform sur-
faces. The design & specified dimensions
have been closely adhered to, & are as fol-
lows: width at formation level & at spring of
roof, 16 ft.; clear centre height above forma-
tion level, 23 ft. 2 $\frac{1}{4}$ ins.; & above rail level,
21 ft. 6 ins., ballast being 9 ins. deep. The
nature of the rock through which the tunnels
pass is granitic, & is of such solidity that but
little timbering, 200 ft. in all, has been re-
quired. On curves from 8 to 14 degrees, the
centre lines of the tunnels have been placed 7
ins. off the centre line of the road-bed; on 6
degree curves, 5 ins.; & on 4 degree curves,
3 ins. Following is a list of tunnels:

Mile	3 $\frac{1}{2}$	194 ft. from portal to portal.
"	12	187 "
"	15	291 "
"	23	3,004 "
"	36	329 "

Combined these tunnels cover a total dis-
tance of 4,004 ft.

No safety switchbacks have as yet been con-
structed. In a railway having so many miles
of grades exceeding 2 per 100, safety switch-
backs are a necessity & should be built with-
out delay. Owing to the length of time re-
quired to construct the long tunnel at mile 22,
& the desire of the railway company to open
the railway for traffic, a temporary switchback
was constructed over the mountain at that
point. It consisted of 10 switches, 5 on the
east slope & 5 on the west slope. The total
rise from the east portal of the tunnel was 507
ft., & from the west portal 403 ft. The grade
both ascending & descending was uniformly
4 per 100, & curves varied up to 22 degrees.
The total length of the switchback from main
line to main line was 5.12 miles, & the time
occupied in traversing it by trains was one
hour. The steep grade, & the temporary
character of the work, necessitated extreme
care on the part of the officials operating it.

From West Robson to mile 5.4 & from mile
50.5 to mile 67 at Grand Forks there are no
trestles. Between miles 5.4 & 50.5 trestles
have been constructed to a most unusual ex-
tent. The location of the line in this respect
has been made with an undue regard to econ-
omy, & should the railway become a trunk
line many of these structures must be elimi-
nated. Every trestle is an element of danger,
& the only excuse in the present instance is
the immense cost of obtaining a more solid
road-bed by throwing the alignment further
into the side hill. There are in all 49 timber
trestles, covering a distance of 13,140 ft. or $5\frac{1}{2}$

% of the total distance between miles 5.4 & 50.5.

The following is a list of all trestles:

No. of bents.	No. of trestles.	Total length, ft.	Greatest central height, ft.	Average centre height, ft.
5 to 9	9	1215	36	26
10 " 14	15	2895	66	35
15 " 19	10	2700	83	57
20 " 24	5	1620	92	58
25 " 29	6	2475	120	58
30 " 34	2	975	128	126
35 " 39	1	555	90	90
40 " 44	nil			
45 " 49	1	705	170	170

Totals.....4913,140

In the design & construction of these trestles, strength, rigidity & durability have been objects sought for & obtained. They are excellent structures in every detail. Most of the trestles are built over rocky gulches, & in these cases the best possible foundations were obtained, namely, mud-sills resting on solid rock. In earth & soft material it was found, in some cases, advantageous to use piles 10 ins. in diameter at the small end, & 14 ins. at the large end. These were driven with a 2,000 lbs. hammer, having a free fall of 20 ft. for the end blow, the maximum penetration under the last 5 blows not exceeding 5 ins. Pile foundations are used for 10 trestles, one pile under each post. In the substructures all bents are 15 ft. apart, centre to centre. Caps are 12 by 12 ins. by 14 ft., & are secured to posts by $\frac{3}{4}$ in. drift-bolts 21 ins. long. In single deck trestles there are 2 vertical posts & 2 raking posts, each 12 by 12 ins. Sway braces & wales are 3 by 10 ins., & are bolted at the ends through posts $\frac{3}{4}$ by 18 $\frac{1}{2}$ in. screw bolts, & spiked to intermediate posts, $\frac{1}{2}$ by 7 in. boat spikes. Longitudinals 8 by 10 ins. are placed above wales & sills & are screwed at the ends by $\frac{3}{4}$ in. screw bolts, 21 $\frac{1}{2}$ ins. long. In double-decked trestles the same design & scantling of timber are retained. The sill of the upper deck is separated from the cap of the lower deck by 8 longitudinal 8 by 12 ins. Connecting the lower half of each deck are 4 longitudinal diagonal braces 6 by 10 inches. In 3 deck trestles & upwards the same design & dimensions are retained. The number of posts is increased as follows:

Upper deck, 2 uprights & 4 raking posts.	
Second " " " 4 " "	
Third " " " 4 " "	
Fourth " " " 6 " "	
Fifth " " " 6 " "	
Sixth " " " 8 " "	

External raking posts batter at the rate of 3 ins. to 1 ft., internal raking posts at the rate of 2 $\frac{1}{2}$ ins. to 1 ft.

There is one exception to the style & dimensions mentioned above. This occurs at mile 27, & is known as Porcupine Trestle. It is stated that timbers of the required length could not be obtained within a reasonable distance. The posts were, therefore, reduced from 30 ft. in length to 18 ft., thus rendering 10 decks necessary. This structure is not as finished in appearance as its neighbors. The posts in the various decks are, upper & second decks, 4; 3rd, 4th, 5th & 6th decks, 7; 8th, 9th & 10th decks, 8. Longitudinals & diagonals, 8 by 10 ins., connect each bent. In one important feature this trestle differs from all others. The customary cap & sill between decks has been dispensed with, & a single timber substituted. It is claimed by the officials that the reduction in weight thus obtained

is an advantage, & a strong & rigid trestle has been obtained. Whether this is the case or not can only be determined by a careful investigation of the forces affecting the structure. The change effected is an innovation & contrary to usual practice. In appearance the structure is stable, but no opinion can be passed without calculations, & for that purpose a detail plan is necessary.

The trestle superstructures are unusually strong. There are 8 stringers of Douglas fir, 30 ft. by 8 ins. by 16 ins., breaking joint, & bolted together by $\frac{3}{4}$ -inch screw bolts, 25 $\frac{1}{2}$ ins. long. Ties are 8 ins. by 8 ins. by 12 ft., spaced 4 ins. apart & spiked to stringers by boat spikes, $\frac{1}{2}$ -in. by 12 ins. Guard rails are double. The outside rail is 8 by 8 ins., bolted to every fourth tie by $\frac{3}{4}$ -in. screw bolts, 18 $\frac{1}{2}$ ins. long. The inside rail is parallel to the outside rail, except for 20 ft. at the ends, where it flares outwards to a junction with the outside rail. It is secured to the ties at intervals of 3 ft. by means of lag screws, $\frac{5}{8}$ by 8 in. On curves the superstructure is cant to the required elevation by increasing the length of the outside posts of the superstructure. All washers are of cast-iron, $\frac{5}{8}$ -inch by 3 ins. by 1 $\frac{1}{2}$ ins.

Timber Howe truss bridges have been constructed, or are in course of construction, at the following points:



THE COLUMBIA AND WESTERN RAILWAY.

Mile 8 $\frac{1}{2}$, McCormack Creek.—This is a Howe truss deck span of 150 ft., supported on frame timber abutments, consisting of 24, 12 by 12 ins. posts resting on solid rock. Rail level is about 190 ft. above the creek. The approaches consist of 21 trestle bents. The total distance covered by the bridge & its approaches is 490 ft.

Mile 11, Moberley Creek.—This also is a Howe truss deck span of 150 ft. supported on frame timber abutments, consisting of 24, 12 by 12 ins. posts resting on solid rock. Rail level is about 160 ft. above the creek. The approaches consist of 32 trestle bents. The total distance covered by the bridge & its approaches is 660 ft.

Mile 41 $\frac{1}{2}$.—A timber trestle about 100 feet long was originally constructed. A small snow-slide, however, occurred & swept away the central bents. It is now proposed to erect a small through truss in place of the trestle, & false-work for this purpose has been placed in position.

Mile 53 $\frac{1}{2}$, Kettle River, 1st crossing.—At this point it is proposed to construct 2 Howe truss deck spans, each 150 ft., supported on frame timber abutments & pier, each abutment having 24 posts & the pier 28 posts. All posts will be supported on piles driven until a 2,500 lb. hammer, with a fall of 25 ft., will cause 1 in. only of penetration. Piles will be enclosed in rock-filled caissons. The approaches are trestle bents, & are already constructed. The east approach consists of 62 bents, & the west of 19 bents. Rail level is

about 80 ft. above water level, & the whole structure covers a distance of 1,570 ft.

Mile 55, Kettle River, 2nd crossing.—At this point there has been constructed a Howe truss through span of 130 ft., the east end resting on solid rock, & the west end on a frame timber abutment consisting of 24, 12 by 12 ins. posts on solid rock foundation. Rail level is about 60 ft. above river level, & the whole structure covers a distance of 140 ft.

Mile 64 $\frac{1}{2}$, Kettle River, 3rd crossing.—At this point it is proposed to construct a Howe truss through span of 150 ft., supported on frame timber abutments, each consisting of 24 posts, 12 by 12 ins. The east abutment will rest on a rock-filled crib on solid rock foundation, & the west abutment on piles enclosed in a rock-filled caisson. The approaches are constructed, & consist of 12 trestle bents on piles. Rail level is about 30 ft. above river level, & the whole structure, when completed, will cover a distance of 360 ft.

Mile 67, Kettle River, 4th crossing.—Here it is proposed to construct two Howe truss through spans, one of 150 ft. & one of 100 ft. resting on pile abutments & pier. Each abutment will consist of 24 piles, & the pier of 28 piles, placed in rock-filled crib caissons. The approaches are built, & consist of about 80 pile trestle bents. Rail level is about 12 ft. above river level, & the whole structure, when

completed, will cover about 1,470 ft.

The total combined length of bridges & approaches will be about 4,655 ft. Bridges built & proposed to be built are in accordance with the C. P. R. Co.'s standard plans, which have met with much approval, the only changes made being the substitution of steel clamp-plates & increasing the depth of the lower chords from 15 to 17 ins. in 100-ft. spans & 18 to 19 ins. in 150-ft. spans. The workmanship

in all complete bridges is excellent.

Ties are of cedar, hemlock, tamarac & fir, both hewn & sawn. They are laid 24 ins. from centre to centre; faces are from 7 ins. to 8 in. width, & the thickness uniformly 7 in. In place of brackets, Servis tie plates are spiked to every tie on all curves of 6 degrees & upwards, holding the track in perfect gauge.

Track laying has been excellently done, the ties & rails presenting to the eye uniform straight lines & curves, without depressions, except at the few points where embankments have sagged. All curves have been eased off at both ends, & the outer rails elevated for velocities varying according to the retardation due to the curve & the particular grade on which the curve is situated. Rails break joint & are provided with the full complement of spikes, bolts, & angle plates.

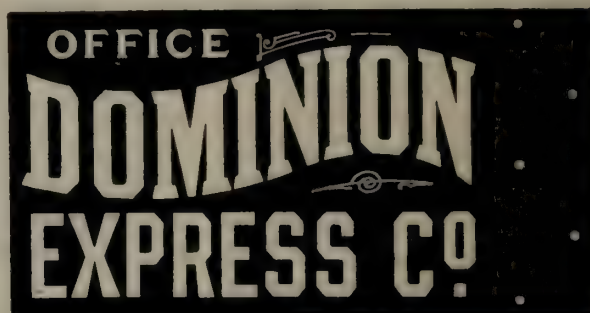
Rails are of two kinds. Steel rails, 56 & 60 lbs a yard, used on portions of the main line of the C. P. R., have been relaid between West Robson & mile 5 & on the switchback at Bull Dog Tunnel, & also between the first crossing of Kettle River & Grand Forks, a total distance of 17.4 miles. The remaining 50 miles are laid with heavy new steel rails, 73 lbs. a yard. These rails are according to a design of the C. P. R. Co., & are extremely flat-headed. The 56 & 60-lbs. rails are provided with 4-hole angle plates, pierced for $\frac{3}{4}$ -in. by 3 $\frac{3}{4}$ in. bolts. Nuts are hexagonal, & lock-washers are positive & national. The 73-lbs. rails are provided with 4-hole angle

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plates, pierced for $\frac{3}{8}$ -in. by 4-in. bolts. Nuts are hexagonal, & lock-washers positive & national.

A double-wire telegraph has been constructed between West Robson & Grand Forks. Poles are 25 ft. long, 8 ins. diameter at the top, & from 150 to 200 ft. apart. This work has been well done.

The right-of-way has been cleared for 50 ft. on each side of the centre of the track.

Side tracks aggregating 19,298 ft. in length have been constructed at West Robson & 8 other points. Y's for reversing engines & cars have been constructed at West Robson, at summit of long tunnel switchback, & at Grand Forks. Water tanks, temporary & permanent, have been erected at 8 points, varying from 10,000 to 40,000 gall. capacity. The buildings consist of 9 neat, well furnished, serviceable section houses, 3 stations & a round house.

The West Robson-Grand Forks division of the C. & W. Ry. has been skilfully, though economically, located, & constructed under careful engineering supervision. For a new road it presents a finished appearance, all embankments & excavations being neatly sloped, the grading regular, the trestles & bridges symmetrically built, & the rails uniformly straight or curved. For a mountain railway the degree of curvature is light, & though nearly 50% of the whole length of railway consists of curves, the total amount is not excessive. The grades are steep, but are rendered necessary by the character of the country traversed. That the road bed is in excellent condition for traffic is proved by the fact that construction trains are being run up to speeds of 25 miles an hour, & no serious derailments have been made public. When the road-bed is fully ballasted, fully equipped with all the lesser details of a working railway, & placed under ample & constant inspection, it may be safely operated at speeds up to 25 miles an hour. Many necessary, though minor, details are still lacking, such as station houses, engine houses, repair shops, turntables, mile posts, fencing, sign-boards, whistling posts, caution posts, etc. The steep broken character of the mountain side-hill renders it probable that trouble will be experienced from snow-slides. So far only one small slide has occurred. Earth & gravel slides will be more or less common for some years to come, as in the case of all new railways.

Mr. Smith's report on the Grand Forks to Greenwood section of the line will be given in our next issue.

As stated in our introduction, Mr. Smith's report was written before the completion of the line. The whole road between West Robson & Midway has since been thoroughly ballasted, & we are informed by competent judges that it is one of the best pieces of new work they have ever seen. No safety switch-backs have been constructed, & we understand that it is not the intention to put any in. It is contended, notwithstanding what Mr. Smith says, that in no place on this continent, & probably on no other, are safety switch-backs used on such grades as exist on the C.

& W.R. All the Howe truss spans which Mr. Smith refers to have been built. The trestle at mileage 68.1, which was temporary, has been replaced. The bridge at the crossing of Boundary Creek, 89.4 miles from West Robson, has been completed.

Grand Trunk Railway Elevators.

The illustration on this page shows the G.T.R. elevator at Portland, Me., which has a capacity of 1,000,000 bush. It is thoroughly equipped with all the modern conveniences for handling export grain. It is 221 x 97½ ft. & 160 ft. high. The engine house is of brick 80 x 41 ft., & has a steel-plate smoke-stack lined with brick, 13 ft. in diameter at the base, & 161 ft. high. The foundation is formed by building granite & concrete piers, & walls on piling. The bins, which are 66 ft. deep, are supported by heavy posts. The basement extends under the entire house, & is well ventilated & lighted, & has a concrete floor. The basement contains a system of cross-belt conveyers by which grain can be

the elevator heads & the spouting from them to the garner. Each elevator head is provided with a switch head so that grain may be spouted into either of two garner. The entire 10 elevators may be used for either shipping or receiving.

There is a complete system of pneumatic sweepers throughout the entire house arranged to discharge dust into the furnace where it is burned. A complete system of fire protection is furnished by a standpipe & hose connection at many points about the house. A duplex pump in the engine-room supplies water.

There are two stairways leading from the first story to the cupola, one at each end, & at one end is a passenger elevator, which runs from the first story to the top of the elevator. Along the side of the elevator is a belt gallery which leads to 2 belt galleries running along each side & the entire length of the Atlantic wharf. The galleries are 50 ft. above the wharf. Two systems of belt conveyers traverse these galleries, & are supplied with iron trippers, which will trip grain into any hatchway of a vessel. The shipping capacity is 40,000 bus. an hour, and 3 ships can be loaded simultaneously.

The power plant consists of a battery of four 60-in. boilers, & a pair of horizontal non-condensing Corliss engines, 24 x 42 in. stroke. All power is transmitted by means of rope drives, & all machinery which is required to start or stop while the shafting is in motion is provided with friction clutches.

John S. Metcalf Co., Chicago, were the architects & engineers of the building, etc.

A grain transfer house has recently been completed in the G.T.R. yards at Elsdon, Ill., near Chicago. This elevator is 36x120 ft., & 130 ft. high, with a track shed 15 ft. wide on each side, & extending the full length of the building. The foundation consists of concrete piers, resting on piles. The elevator is a frame structure, the bins being of the usual crib construction, & is equipped with first-class

machinery for rapid handling & transferring of grain. The shipping track runs through the shed on the south side of the house, & the receiving track through the north shed. The elevator is equipped with 3 receiving legs of 8,000 bush. capacity per hour. They have large sinks, & each leg is supplied with a pair of power shovels. The 3 shipping legs are each of 6,000 bush. capacity. On the shipping side of the elevator there are also 4 car-loading spouts, fitted with car-loaders. These spouts are located far enough apart so that 4 cars can be placed on the track & loaded simultaneously. On the 1st floor of the elevator is located the heavy geared car-puller, having 2 wire rope drums so arranged as to pull cars on either track with steel wire cable & heavy car-puller hooks. On the first floor are also located 4 no. 9 oat clippers, arranged so as to spout to 3 elevator legs put in for handling the grain from the clippers. On the roof of the track shed on the shipping side of the house are located 4 dust collectors for the above mentioned clippers. Under these dust collectors is a pipe connected with the sweeper system



GRAND TRUNK RAILWAY ELEVATOR AT PORTLAND, MAINE.

taken from any of the bins. Two receiving tracks extend through the house, & to receiving legs, with an elevating capacity of 8,000 bus. an hour, take the grain from the sinks to the cupola. The grain is unloaded from the cars with power shovels. There are also 5 loading spouts equipped with bifurcated loaders. In the first story of elevator or working floor is a car puller with two drums arranged for pulling cars on both tracks at the same time, by means of wire cable.

The first floor of the 5-story cupola is the distributing floor. It contains 20 Mayo trolley spouts & 12 telescope trolley spouts. The Mayo spouts distribute the grain from the scale hoppers, & the telescope spouts distribute grain from a reversible belt conveyer, which runs the full length of the second floor of the cupola. This conveyer is supplied with an automatic travelling tripper. The third story of the cupola contains ten 1,200-bus. Fairbanks' hopper scales. The fourth is the garner story. Along one side of this story, extending the full length of the building, is a line shaft from which power is taken to drive the elevators. The top story is occupied by

fan which takes the dust from the clippers, together with the dust from the sweepers located throughout the building, & discharges it to a large cyclone, on the top of the boiler-house, which is connected with the furnaces of the boilers.

In the cupola of the elevator are six 1,400 bush. garners, which receive the grain from the elevator heads & discharge to six 1,400 bush. scale hoppers resting on Fairbank's scales. These scales discharge to 6 distributing spouts, which in turn discharge to the different bins through holes in the distributing floor. The 3 clipper legs ending on the distributing floor are supplied with telescope distributing spouts to distribute the grain to the bins. The capacity of the elevator is only 118,000 bush., quick handling & transferring of the grain rather than large storage capacity being required for the business.

The elevator is equipped with signals & electric bells & other appliances to facilitate its operation. At one end of the elevator is located the brick power-house. In the boiler-room are 3 horizontal tubular boilers, the heater & feed pump. A 450 h.p. Corlis engine furnishes ample power for the machinery of the elevator. In the engine-room is also located a dynamo, driven by a small engine, which supplies the light for the entire elevator. All of the transmissions throughout the elevator, excepting the fan, are of manilla rope. John S. Metcalf Co., of Chicago, furnished the plans & specifications & built the elevator.

Permission has been obtained from the Czar to establish a sort of Young Men's Christian Association among railway employees in Russia. It is to be called "Committee for the Improvement of Young Men."

Recent Dominion Legislation.

Among the acts passed at the recent session of Parliament are the following which especially relate to the transportation & allied interests:

- Respecting the Kaslo & Lardo-Duncan Ry. Co.
- Respecting the B.C. Southern Ry. Co.
- Respecting the Montreal & Ottawa Ry. Co.
- Respecting the Canada & Michigan Bridge & Tunnel Co.
- Respecting the C.P. Ry. Co.
- Respecting the Hereford Ry. Co.
- Respecting the Niagara Grand Island Bridge Co.
- Respecting the River St. Clair Ry. Bridge & Tunnel Co.
- Respecting the Canada Southern Bridge Co.
- Respecting the Pontiac Pacific Junction Ry. Co.
- To incorporate the Port Dover, Brantford, Berlin & Goderich Ry. Co.
- Respecting the Ontario & Rainy River Ry. Co.
- Respecting the Montreal, Ottawa & Georgian Bay Canal Co.
- To incorporate the Morris & Portage Ry. Co.
- To incorporate the Quebec & New Brunswick Ry. Co.
- Respecting the Cowichan Valley Ry. Co.
- Respecting the Northern Commercial Telegraph Co.
- Respecting the Montford & Gatineau Colonization Ry. Co.
- Respecting the Thousand Islands Ry. Co.
- Respecting the Bay of Quinte Ry. Co.
- Respecting the Oshawa Ry. Co.
- To incorporate the St. Mary's River Ry. Co.

- Respecting the St. Clair & Erie Ship Canal Co.
- Respecting the Lake Erie & Detroit River Ry. Co.
- Respecting the Brandon & Southwestern Ry. Co.
- To amend the "Admiralty Act, 1891."
- Respecting the Restigouche & Western R Co.
- Respecting the Yarmouth Steamship Co.
- Respecting the Quebec Bridge Co.
- To incorporate the St. Lawrence Terminal & Steamship Co.
- Respecting the Western Alberta Ry. Co.
- To incorporate the Royal Marine Insurance Co.
- To incorporate the Comox & Cape Scott Ry. Co.
- To amend the act relating to ocean steamship subsidies.
- Respecting the Red Deer Valley Ry. & Coal Co.
- To incorporate the South Shore Line Ry. Co.
- To amend the Pilotage Act.
- Respecting the construction of a branch railway from Charlottetown to Murray Harbor.
- To incorporate the British America Pulp, Paper & Ry. Co.
- Respecting the Central Vermont Ry. Co. (Foreign).
- To authorize the granting of subsidies in aid of the construction of certain lines of railway.
- To amend the Railway Act.
- To incorporate the Quebec & Lake Huron Ry. Co.
- Respecting the Nipissing & James Bay Ry. Co.
- To incorporate the Manitoulin & North Shore Ry. Co.

The Northey Gasoline Engine with Triplex Pump, for

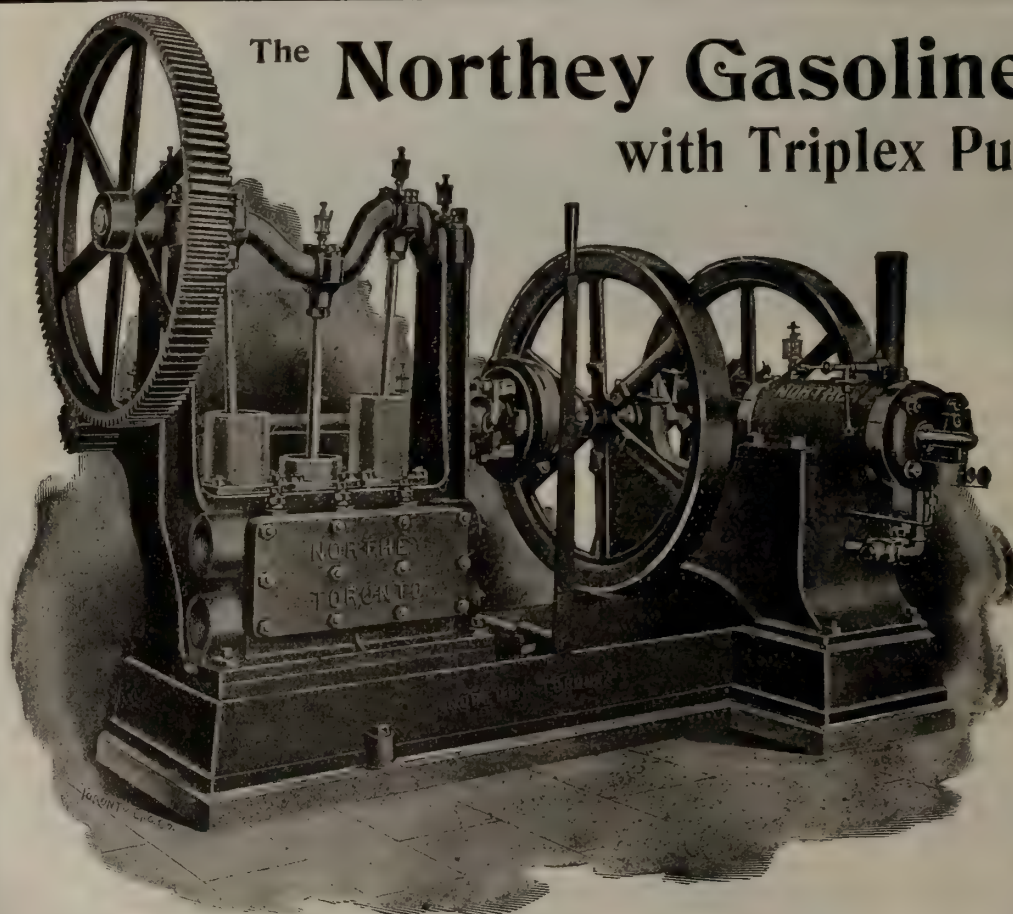
TANK and FIRE DUTIES.

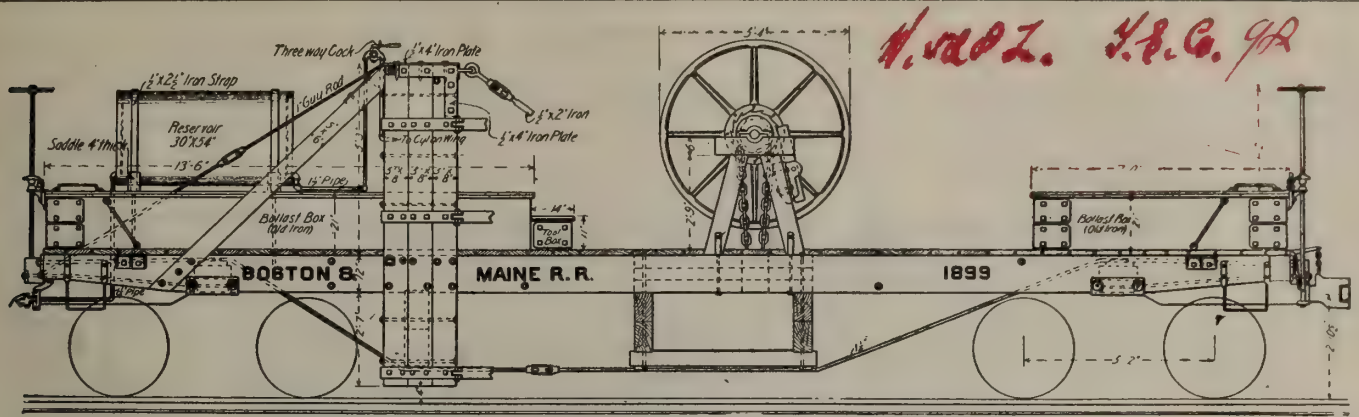
We here illustrate a complete, space saving pumping plant, including the Northey Triplex Power Pump and Gasoline Engine. This arrangement is admirably adapted for prompt service, as the engine is ready for work at a moment's notice, can be run by any one, and will operate for hours without attention.

The Triplex style of pump with cranks placed 120 degrees apart gives a practically constant flow of water. Both machines are strongly built, and have an ample margin of strength for heavy continuous duty. We have recently installed two such plants at Coteau Junction for the Grand Trunk and Canada Atlantic Railways, and are now filling a large order for the Canadian Northern Railway.

Booklet and Catalogues on request.

The Northey Co., Limited,
1032 King St. Subway,
TORONTO, CANADA.





BOSTON & MAINE SHOULDERING CAR, FIG. 1—SIDE ELEVATION.

To incorporate the Quebec Southern Ry. Co.

Respecting the Algoma Central Ry. Co.

Respecting the British Yukon Mining, Trading & Transportation Co., & to change its name to the British Yukon Ry. Co.

Respecting the Dominion Atlantic Railway Company.

Respecting the Buffalo Ry. Co. (Foreign).

Respecting the Safety of Ships.

To incorporate the Ottawa, Brockville & St. Lawrence Ry. Co.

Respecting the Salisbury & Harvey Ry. Co.

To incorporate the Lake Superior & Hudson's Bay Ry. Co.

Respecting the Schomberg & Aurora Ry. Co.

Respecting the Timagami Ry. Co.

To confer on the Commissioner of Patents certain powers for the relief of the Servis Railroad Tie Plate Co. of Canada, Ltd.

A Roadbed Shouldering Car.

F. Barr, Assistant General Manager of the Boston & Maine R.R., has favored us with a photograph & drawings of a shouldering & levelling car, built at the Co.'s shops. It consists of a specially constructed flat car with wings fitted with interchangeable knives. The wings can be extended or contracted & the knives raised or lowered either by hand or by air, depending upon the construction of the car.

The following description of it is taken from the Railway & Engineering Review:

The length of the car over end sills is 34 ft. & the capacity 70,000 lbs. The width over side sills is 6 ft. 4 ins. & the distance from the outside of the end sill to the centre of the body bolster, 4 ft. 8 ins. The distance between centres of needle beams is 4 ft 4 ins., & the height from the top

of rail to the centre of the drawbar, 2 ft. 10½ ins. It is equipped with M. C. B. vertical plane pocket couplers. Four of the longitudinal sills in the framework are 5x12 in. timbers, two other longitudinal sills are 5x8 in. timbers, & the two end sills are 7x8-in. timbers. The body bolsters are constructed of wood & iron.

Fig. 1 shows the side elevation of the car, with the wings removed. The wings are hinged to upright posts standing against the side sills, at either side of the car, & securely braced both crosswise the car & longitudinally. The position of the wings is controlled by sliding struts guided within the boxed way suspended from the middle portion of the car, & forced in or out by the large hand wheel & chains appearing in this view. The wings are constructed of heavy timbers strongly framed together. The cutter knives, carried at the bottoms of the wings, may be operated either by compressed air, as shown in the rear elevation view, fig. 2; or by rack & pinion as shown by the half-tone view of the car in service, fig. 3. By using air there is a saving of the labor of 3 men, as 1 man can operate the cutters by air, but 4 men are required to raise or lower them when both wings are being used on single track, or 2 men, if only one wing is being used, as on double track.

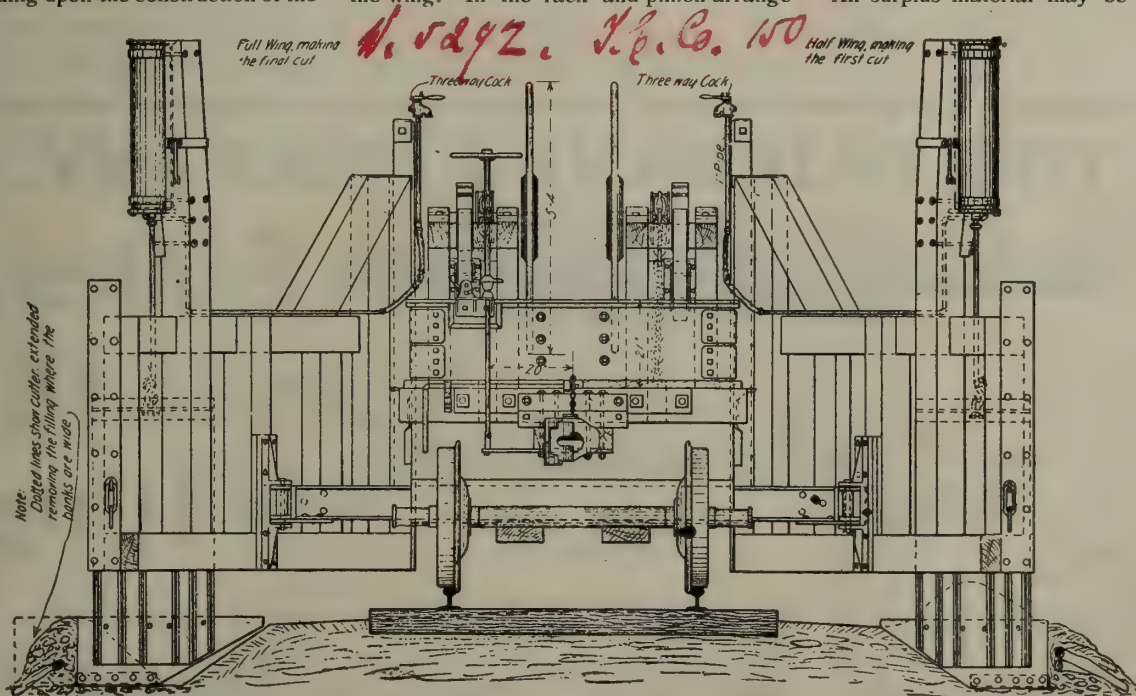
The air cylinder for operating each cutter is 10 ins. in diameter, stands vertically (fig. 2), & is attached to a support which is part of the wing. In the rack and pinion arrange-

ment a hand wheel is attached to the opposite end of the shaft to which the pinion is secured, the rack being secured to the cutter. Fig. 1 shows the air receiver, 30 ins. in diameter & 54 ins. long, located at the end of the car which is forward while the car is in service. At either end of the car are ballast boxes, in which old iron can be placed to hold the car down to its work. The manner of admitting air to the operating cylinders, & other details, are made clear in the accompanying illustrations. It should be noted that the position indicated for the right wing, in fig. 2, is half way open, while the left wing is shown fully extended.

Fig. 4 represents a cross section of the roadbed showing the condition of the shoulders after the car has passed over them. The dotted line shows the reach of the knife moved out to its extreme length. A special cutter for levelling purposes has a reach of 12 ft. beyond the rail.

This machine has been used on the B. & M. for a variety of purposes, as explained by the following account from Mr. Barr: "One use of it has been the levelling of the subgrade for a parallel track, or any work calling for the displacement of material within reach of the machine, such as widening out a fill or grading for additional tracks. By extending the wings, gravel or other material can be levelled off to a width of 12 ft. or more from the track & to any depth desired not exceeding 18 ins. All surplus material may be removed from

both sides of roadbed on single, & from outside of double, track to leave a uniform shoulder of any shape desired, cut with lines exactly parallel to the rail whether on straight or curved track. As a result, a uniform cross section is not only obtained, but the drainage of the ballast is greatly improved, thereby doing away to a large extent with shimming during the



BOSTON AND MAINE SHOULDERING CAR, FIG. 2.—REAR ELEVATION.

winter months. Weeding & ditching can also be done. By the use of this car the work can not only be executed with perfect uniformity, but it can be done without the employment of large crews of laborers, & at a saving of 85% on what it costs to do the work by hand. The force required to operate it properly, in addition to the locomotive, consists of a train crew, a foreman & 4 men. As illustrating the difference in time & expense of work done by this car & the same kind of work done by hand, a 30-mile section of the B. & M. trimmed with the car in 4 days could not have been formed by hand in the same time with less than 375 men, as shown by following report of one of its roadmasters:

"I took the standard cross section which was given by the engineer's department at that time, & kept figures on the cost of putting the shoulder on, which was practically the same as put on by the shouldering car, & I found that it cost us about \$75 a mile. This would allow about 100 ft. a day per man. To cover the 30 miles, which we did in 4 days' time with the levelling car, it would have taken 375 men 4 days at a cost of \$2,025. The total wages of men in the shouldering car outfit were \$114.20. To this expense should properly be added \$378, the wages of 70 men employed in levelling back material which the car could not reach, & clearing up material in cuts that the car could not dispose of, making the total expense \$492.20."

"This railroad has found that it costs not less than 4 times as much to do the work by hand as when this device is used. Then, again, the work when completed by hand, even under the best conditions, will be irregular, while that done by this machine will be absolutely uniform. The actual amount of track covered in a day's work will depend upon the kind of material & the amount moved; also the width of the bank over which the material is to be put & the frequency of trains. The B. & M. has moved 500 yards of fill, levelling it 6 ins. below the top of ties & 10 ft. from rail, for a distance of 1,000 ft. in 25 minutes."

The car will be in service on the B. & M. during the entire season. For other cuts see pg. 233.

The Department of Marine has issued a pamphlet, "The Currents in the Gulf St. Lawrence, including the Anticosti Region, Belle Isle, & Cabot Straits," the information contained in it being condensed from the reports of the surveys of tides & currents for the seasons of 1894, 1895 & 1896.

C.P.R. Construction, Betterments, Etc.

Atlantic Division.—The Co. has purchased property at Bay Shore, St. John, N.B., on which to place a big coal dump of from 20,000 to 30,000 tons. The coal will be taken to Carleton in barges & hauled to the dump, where it will be piled for winter use.

New steel rails, weighing 80 lbs., are being laid on 8 miles between St. John, N.B., & Vanceboro, Me., replacing 56 lbs. rails. This will complete the line of heavy rails throughout from St. John to Montreal.

McAdam Jct. Station.—On page 235 are illustrations showing the main track elevation & the ground floor plan of the station now being erected at McAdam Jct. It will be a handsome 2½ story structure of McAdam grey granite, with Welsford red granite corners, which will make a pretty contrast in color. It will be 133x36 ft., with a basement 60x36 ft., in which will be located the coal cellar, kitchen, larder, scullery, laundry, drying room & boiler room. On the ground floor will be the lunch room & dining room, which will form part of the hotel, & ladies' & general waiting rooms, toilet rooms, ticket office, baggage & express rooms. The first floor will be divided, half being taken up by the hotel accommodations, which will consist of 7 bedrooms, parlor, reading & writing room, bath room & closets. On the other end of this floor, & separated from the hotel, will be the offices of the Superintendent & staff, train dispatchers, train master, conductors, agent, freight & customs. The attic will contain 4 bedrooms for the hotel servants. A verandah will surround the entire structure.

Montreal Terminals.—The Co. recently applied to the Montreal Harbor Commissioners for use of the space adjoining its elevators, which had been assigned to the Johnson Steamship Line, but which was not being used by any boats. The Co. wants this space for the extension of its terminal facilities.

Work is proceeding between Mountain st. & the city limits, providing additional yard space & shunting grounds.

Owen Sound.—A two-story office building & additional freight shed has been built here. (Feb., pg. 39.)

Guelph.—It is said that a connection will be made between the Co.'s line at Guelph & the Guelph electric street railway.

Ottawa Station.—The building which is being erected to replace the station burned a

few months ago will face on Broad st., & will be about 600 yards north of the site of the old building. It will be of stone & brick. The contractors are Lyons & White, of Ottawa, & the contract price is said to be \$35,000. The aqueduct is being bridged to make room for the additional tracks to reach the station. (June, pg. 173.)

Ottawa Connecting Line.—Although nothing definite is being done about the construction of the proposed line across the city to connect the Co.'s union station, near the Chaudiere Falls, with the central station near the canal basin, it is said that the matter is not being lost sight of, & that negotiations are going on with a view to acquiring land on the south side of Wellington st. & along Division st. For part of the way the line will run parallel with the Canada Atlantic tracks. It is said to be probable that a subway or an overhead crossing will be put in at Bank st. (June, pg. 173.)

Carleton Place Shops.—We are officially informed that there is no truth in the report which recently appeared in some of the daily papers, stating that the Co.'s shops are to be moved from Carleton Place to Ottawa.

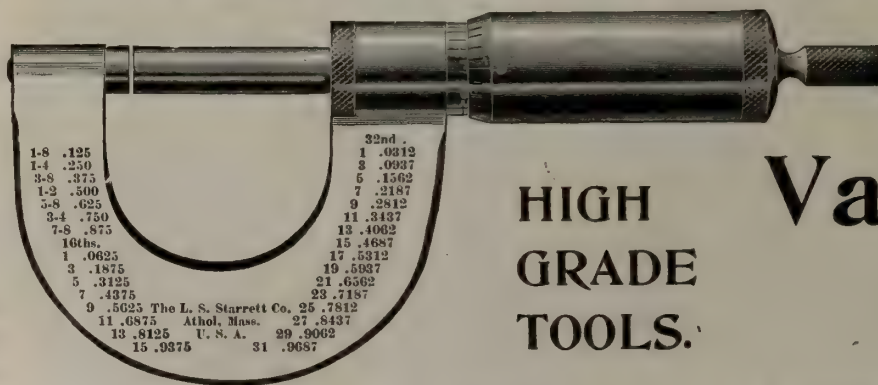
Spur at Webbwood.—The Spanish River Pulp Co. is said to have completed plans for building a spur from the Sault Ste. Marie branch to its mills at Webbwood.

Fort William.—Large additional coal unloading & storage facilities are being provided east of the old coal dumps, towards the lighthouse near the mouth of the Kaministiquia river. (Feb., pg. 39.)

Fort William to Winnipeg.—The question of double tracking the line between Fort William & Winnipeg appears to have been dropped for the present at least, & it is within the probabilities that it will be shelved for several years, as by increasing the number of crossing sidings & lengthening existing ones the necessity for the second track, which for some years to come would only be required during a very few months of the year, can be largely obviated. (Feb., pg. 39.)

The following is reproduced from the Port Arthur Herald:—"It is said that the survey made for the C.P.R.'s new line from Fort William to the height of land crosses the track of the Ontario & Rainy River Ry. three times. Another trial line will be run. We are told that it is altogether likely the O. & R.R. Ry. Co., will be approached by the C.P.R. with a view to having the tracks of the former Co.

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The Fairbanks Co., 749 Craig St., Montreal, Que.

shifted a slight distance south of the present line, so as to allow the C.P.R. to lay its new track free of the crossings mentioned." (May, pg. 140.)

Fort William to Medicine Hat.—Several engineering parties have been at work for some time making surveys with a view to the reduction of gradients & curvature on the main line between Fort William & Medicine Hat.

Dymont to New Klondike.—On June 13 Contractor J. D. McArthur started grading a branch of 7 miles from Dymont, 182.1 miles west of Fort William, to the New Klondike mining district. The Kee-watin Gold Mining Co., which purchased a claim at the terminus of the branch from Senator Watson, of Manitoba, and others, is going to operate it, & the branch is being built simply for ore traffic. At the recent session of the Dominion Parliament a cash subsidy of \$22,400 was voted for this branch.

Bridge Over Red River.—A short time ago it was stated in Winnipeg papers that the Co. had decided to build a bridge over the Red River at Winnipeg, to be used in place of the present Louise bridge. We are informed that no arrangements have been made for building another bridge, and that nothing has been done further than to make some surveys. We think it probable that the question will come up in the course of the next year or so, as the Louise bridge is not at all well adapted for the increased traffic, being used also for vehicles which very much interfere with the train service.

Deloraine-Waskada Branch.—The Dominion Parliament at its recent session granted a cash subsidy of \$64,000 for the extension of this branch further westward for a distance not exceeding 20 miles. The Manitoba Government has been negotiating with the C.P.R. Co. about going on with the work, but it is not considered likely that it will be proceeded with this year at least, on account of the partial failure of the Manitoba crops. (Jan., pg. 7.)

McGregor-Varcoe Branch.—The 20 miles of grading, which were completed last year, have been extended to mileage 26.45 at Wellwood. (May, pg. 141.)

The Acton Burrows Co.'s enameled iron signs are to be used for station names on this branch, instead of painted wooden signs.

Pipestone Branch Extension.—It is expected that this branch will be completed this year to 50 miles west of Antler, last year's terminus, which will carry it to Clare at the west end of the Moose Mountain. (May, pg. 141.)

Crow's Nest Pass Ry.—J. W. Stewart has completed his contract for grading on this line from Procter's Creek, on the south side of the west arm of Kootenay Lake, to Five Mile Point, near Nelson. It was principally side hill work, a good deal of rock being encountered. The gradients & curvature are light. A slip has been built for the Co.'s steamboats at Procter's Landing, & a

movable slip is also being provided there. Another slip is to be built at Nine Mile Point. The line is being connected with the Nelson & Fort Sheppard Ry., from which running rights have been secured into Nelson. (Mar., pg. 71.)

C. F. Hannington is said to have made a

Grand Trunk Betterments, Etc.

Point Levis.—The Co. will erect a building large enough to house all the immigrants bound for the U.S. Immediately on the arrival of a ship the steerage passengers will be separated into two parties, those going to Canada & those to the U.S., so that the U.S. Commissioners will be able to conduct the examination in their own building without being delayed by those immigrants with whom they have nothing to do. The new building will be supplied with a lunch counter, good water & all sanitary appliances. The object of this change is partly to avoid the delay of through international trains at the U.S. frontier.

Victoria Jubilee Bridge.—The Dominion Parliament at its recent session voted \$230,000 to make up the grant in aid of the rebuilding of this bridge to \$500,000.

Abolition of Montreal Level Crossings.

—Early in July the Co., without first obtaining permission from the city authorities, laid a track across Aqueduct St., as a temporary spur from the main tracks to the yards back of the freight sheds, to be used for taking in material for the erection of additional freight buildings. On the matter coming before the City Roads Committee, General Assistant Wainwright appeared for the Co., & stated that the track has been laid under instructions from an official who was ignorant of the city bylaws & asked that it be allowed to remain temporarily. This request was refused & the track was taken up, a request to be allowed to relay it being also refused. This incident brought up again the question of abolishing all the Co.'s level crossings in the city. After a conference between General Manager Hays & the Committee, he submitted the following proposition:—"Confirming my statement at our conference that I was prepared to make a proposition in connection with the reparation of the level crossing of our tracks at Mountain St., I enclose plan of the proposed viaduct, prepared by our Chief Engineer, & will state that the G.T.R. is prepared to at once undertake the erection of viaduct in accordance with this plan, estimated to cost \$135,000, & will pay half of the original cost of said viaduct, upon condition that the city will pay the remaining one half of the cost of erection & maintenance & will thereafter maintain & renew & will assume & pay any incidental or consequential damages to adjacent property or business arising in connection with the separation of the crossing. We will then be prepared to enter into an agreement with the city on the same general terms as above set forth, for the separation of the

level crossings remaining between Mountain Street & St. Henri, by the elevation of our tracks as soon as the details can be agreed upon as to streets necessary to be vacated, overhead clearance, width of subways, time of completion, etc., etc., all of which questions, I take it, the city will desire to have passed upon by its Engineering Department,



BOSTON AND MAINE SHOULDERING CAR IN SERVICE. FIGURE 3.

survey for a line from Sand Creek, near where the Crow's Nest Ry. crosses the Kootenay river, to Golden on the main transcontinental line.

Arrowhead & Kootenay Lake Branch.—The grading done last year has not been continued this year. (June, pg. 173.)

It is reported that surveys are being made for the proposed extension of the Lardo branch, northeast from the Divide & down Toby Creek into the mining region of the Windermere district.

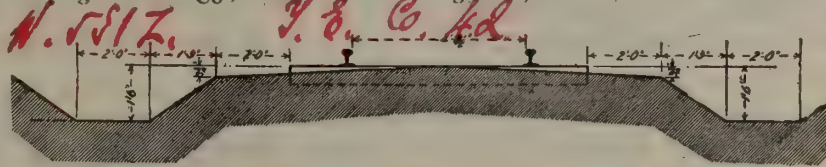
Slocan Branch.—A survey has been made for a branch of 10 miles, starting from the Slocan City branch at Lemon Creek. (Feb., pg. 40.)

Columbia & Western Ry.—The last section between Greenwood & Midway was turned over to the operating department June 10. (June, pg. 173.)

A very complete description of this line between West Robson & Grand Forks is given on pg. 225.

Although surveys westward to a connection on the main line at or about Spence's Bridge have been completed, construction will not be proceeded with beyond Midway this year. (Feb., pg. 39.)

Vancouver Terminals.—The general improvements now being carried on by the Co. on the harbor frontage will, when com-



CROSS SECTION OF ROADBED, BOSTON AND MAINE RY. FIGURE 4.

pleted, add many acres to the Co.'s foreshore property, & will greatly improve the appearance of the city's frontage. Much time will be required to complete the improvements, & the expenditure of a vast sum, estimated at from \$850,000 to \$1,000,000. No one company in Canada will then possess so valuable a foreshore as the C.P.R.

&, until this has been done, it will, of course, be impossible to make detailed plans."

Engineer McNab, of the G.T.R., explained to the committee that the projected bridge was on one side of the street & the homologated line on the other. The width of the proposed bridge was 27 ft., with a projection of 5 ft. on each side. The width for vehicle traffic was 27 ft. The floor beams were extended in such a manner that there would be sidewalks on each side of 5 ft. The ramp began about 50 ft. from Notre Dame St., northern side, & ran up to about 9 ft. from Albert St. They then crossed Albert St. by a span of about 150 ft. Then came a larger span of 210 ft., which passed over the present tracks in Bonaventure, which brought them to a pier on the southern side of St. James St., at which point the ramp began to descend, until it met Mountain St. at the southerly side of the Boys' Home, 207 ft. St. James St. was crossed by a bridge of 54 ft. span, under which the St. James St. traffic would pass. The height was about 20 ft. For pedestrians, they would cross—if they did not choose to take the centre of the road—by sidewalks which were reached by stairways leading from Mountain St., on the westerly side, & from St. James St. on the easterly. There was a stairway leading from the southerly side, about 225 ft. from Notre Dame St. The stairways had been designed so as to not damage more than necessary adjoining houses. A tunnel would not be more practical than a bridge, as continual pumping would be necessary.

The committee decided to refer the matter back to the G.T.R. authorities, to have plans & estimates prepared for an elevated line from Bonaventure station to St. Henri. (Sep., '99, pg. 266.)

Montreal General Offices.—Satisfactory progress is being made with construction. There was some delay at the start, owing to the lack of structural iron & steel, which kept back the contractors for the stone cutting, masonry & brickwork, but this has been overtaken, & the iron & steel supplies are at present abundant. September is spoken of as the date upon which the walls of the building will be complete. Indiana limestone is employed upon the front & sides. This, when dressed, presents a beautiful, clean, marble-like appearance. The blocks of stone come in huge masses, weighing from 10 to 18 tons. These are fashioned into the desired shape in the contractors' yards. The scroll & figure work, which showed beautiful effects in the plans prepared by the architect, are being carried out in front around & over the central entrance, which is nobly proportioned. The

interior work will be started just as soon as the building is sufficiently advanced to permit of such work being carried out. It is to be fitted up after the best examples which this continent affords, & it is said it will be one of the handsomest railway offices in the world. (April, pg. 109.)

Thousand Islands Junction.—It is said that the location of this station may be changed to a point about 2 miles east of the present site.

Queen St. East, Toronto.—Work has been commenced on the new station building. (June, pg. 175.)

Beautifying Stations.—The management is paying a good deal of attention to beautifying station grounds by sodding lawns & planting flowers. A good instance of this is afforded at Allandale, where the bahk between the tracks & Kempenfeldt Bay has been sodded & several flower-beds made. The water-front at Barrie station has been similarly treated.

Hamilton-Niagara Falls Double Track.—

The contract for this work has been given to Rogers & Taylor, of Montreal. (April, pg. 109.)

Hamilton Yard.—The Stuart St. yard is being remodelled. Among other improvements 4 tracks will run into the station, instead of 3 as at present.

International Bridge.—A large force is at work renewing the superstructure on this bridge between Fort Erie, Ont., & Buffalo. (Mar., pg. 71.)

Brantford Bridge.—The city of Brantford wants the Co. to add another span to its bridge, as part of the scheme to prevent a recurrence of spring floods.

Brantford & Main Line Trains.—General Manager Hays recently wrote the Board of Trade that the Co. would before long submit a proposal for running main line trains through Brantford. Several of the operating officials recently went over the route of the proposed cut off between Lynden & the Buffalo & Goderich line. The construction of a station in Brantford close to Market St., & the removal of the freight sheds to a new site south of the present station, is also said to be contemplated. (Mar., pg. 71.)

London.—Extensive improvements are to made here. Work will be at once begun on the completion of a double track from East London to the Cove bridge. A new bridge will be built at the Cove to accommodate the double track. This track will in the near future be continued westward to Komoka.

This double tracking is the nucleus of the double track which will soon extend from Hamilton to Komoka. West of Komoka the double track will not be needed, as the traffic divides at that junction. Many changes will be made in the yard here. Two extra tracks will be put in at the station, making 4 tracks exclusively for passenger traffic & 2 for freight. The station platform will be lengthened & widened.

At Detroit, Mich.—July 17, the bridge over the Chicago & G. T. & the Lake Shore & Michigan Southern Rys., at Congress & Dequindre streets, was wrecked by a train attempting to pass through it which contained 2 cars loaded with iron bridge spans. The height of these spans above the car decking was about 6 ins. more than the overhead structure of the bridge through which the train was attempting to pass gave clearance for; in consequence the bridge was very badly damaged before the train could be stopped.

Chicago & Grand Trunk.—Now that the financial affairs of this road have been settled the work of double tracking will be pushed on vigorously. (June, pg. 175.)

C.P.R. Station Gardens.—The agents at the various stations on the lines east of For William are being encouraged to put their grounds in a neat condition, & have been supplied with a variety of flower seeds.

The Canadian Society of Civil Engineers had a membership on Jan. 30 last of 847, against 716 on Jan. 30, 1899. It is comprised as follows: Honorary members, 7; members, 308; associate members, 289; associates, 40; students, 203.

J. J. Gartshore, Toronto, reports the following recent shipments: Niagara, St. Catharines & Toronto Ry., for its Niagara Falls & Port Dalhousie extension, 300 tons rails; Preston & Berlin Electric Ry., 300 tons rails; Woodstock, Thames Valley & Ingersoll Electric Ry., 150 tons rails; Beck Manufacturing Co., Penetanguishene, 1 yard locomotive.

Beech Sleepers.—Experiments are being made in Germany with beech as a material for railway sleepers. It has been found that without preservative treatment they are apt to rot internally though they may be apparently sound on the exterior. On the Alsace-Lorraine lines, favorable results have been obtained with creosoted beech sleepers, which have shown an average life of 19½ years, while others preserved with zinc chloride have proved still more satisfactory, their life being 21½ years.

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TRACK ELEVATION, MCADAM JUNCTION STATION, CANADIAN PACIFIC RAILWAY.

C.P.R. Tracklaying by Machinery.

The following description of the work of a steam tracklaying machine on the C.P.R.'s Columbia & Western branch in B.C., has been prepared by A. C. Dennis, Division Engineer of Construction. The tracklaying machine consists of a head or "pioneer" car fitted with side chutes for delivering the rails & ties on the ground ahead of the train, & having a stationary steam engine to operate the rollers in the chutes. Similar chutes or tramways extend along each side of the flat cars of the material train, these chutes being carried by brackets inserted from the bottom of the stake pockets. Ordinary flat cars are used. The chutes are connected between the cars, & in the bottom of each chute are live rollers, the alternate rollers being driven by a shaft extending the whole length of the train & being fitted with universal couplings between the cars. The vertical engine on the head or pioneer car drives the shafts by means of gearing & takes its steam from the locomotive. The rails are sent forward on one side of the train & the ties on the other, the ties being delivered by the chute about 60 ft. ahead of the rails, while the rail chute extends about 6 ft. beyond the car. The driven rollers of the tie chute have corrugated surfaces, to get a good hold on the ties, while the alternate rollers are plain & are set about 1-in. lower than the others.

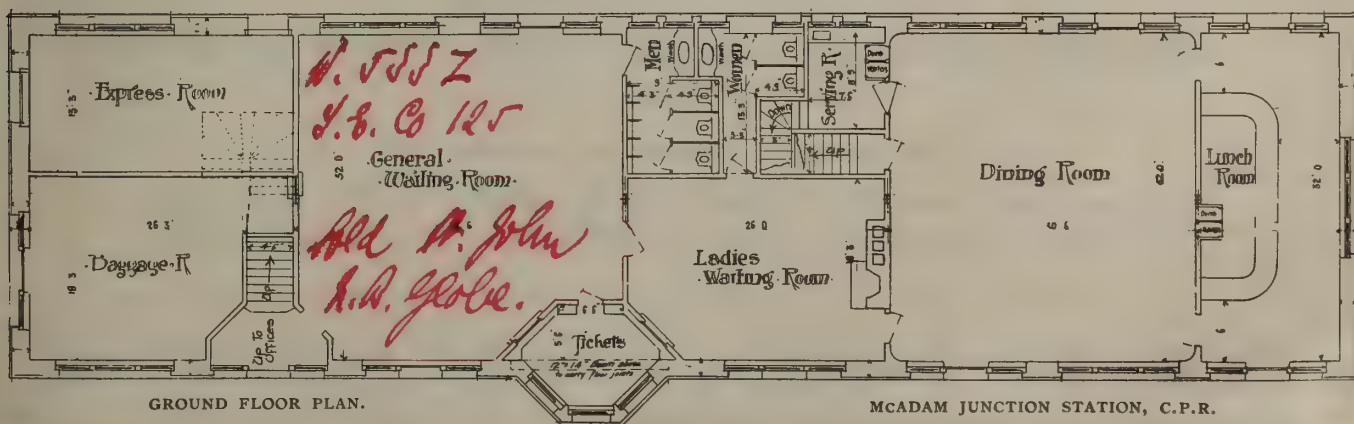
The material train is made up of the rail cars in front of the locomotive & the tie cars behind. At the material yard 8 men & a foreman were employed in unloading, sorting & reloading rails & fastenings, & in curving rails. Each car sent to the front with rails was numbered with a consecutive or lot num-

ber & also marked with the initial station of any curved rails it carried, the first & last rail of each curve having the station painted on it. The cars of rails loaded for the front were trimmed with angle bars only. Spikes, bolts, tie-plates, etc., were loaded together in a separate car, which was used as a tool car as noted later.

The tracklaying train was made up for half a day's work as follows: (1) The pioneer car; (2) four cars of rails, carrying 1,000 ft. of track & anglebars, or about 22 tons; (3) the engine; (4) eight cars of ties carrying 250 to 270 ties each; (5) the tool car. A pushing engine was used at the rear when required. The anglebars & some bolts were transferred to the front end of the pioneer car, which carried a sort of apron provided for that purpose. The tracklaying force proper was distributed as follows: (1) The tie line stretcher, whose duty it was to keep the tie-line stretched 4 ft. from track centre stakes as a guide by which to line up the end of the ties; (2) eight or ten "tie buckers," who took the ties from the end of the tie tram or chute (which extended about 60 ft. beyond the pioneer), & dropped them approximately at the required spacing; (3) the tie marker, who marked ties where rails should lie across them, & kept the spacing pole moved up as required; this pole was a piece of band iron 30 ft. long, with a ring in the front end to pull it along, & having copper rivets at intervals to mark the proper spacing of the ties; it was placed just outside the tie line; (4) two men with "picaroons" lining the ties to the tie line, & at the same time squaring & spacing them according to the rivets in the pole. All this work was entirely ahead of the steel or rail gang & out of their way.

The steel gang consists of 8 "heelers" & 2 "strappers." The strapper puts a pair of angle bars on the last rail laid, & one bolt, not yet tightened. When the next rail came he opened the angle bar with his wrench to receive the rail end. The rail was "entered," the front end dropped & rail pushed back against the expansion shim, the bolt tightened up, & bolt struck and nut started for rail just laid. This is called the "slow-heel" method, but it is believed to be just as quick as, & to give a better chance to regulate the expansion, than the common method of throwing each rail back against the one laid. By the time the first bolt is tight the conductor signalled the engineman to move ahead, & the train advances a rail length. No spiking at all was done ahead of the train. The rails were held to gauge by bridle bars, 2 to a rail length on tangents, & 3 on sharp curves. These bridles were 8-in. rods, flattened at the ends & turned back so that the rails were at proper gauge when the bridle was hooked under the base of the rails. There was a slot at the inside edge of the rail, through which a spike was stuck. The bridle was hooked under the line rail, a spike dropped in the slot, & the gauge rail thrown in so as to clear the turned over part of the bridle; the bridle being held up & the rail pushed out it hooked itself, & on the spike being dropped in it was secured. The bridles were put on by the "heelers," who generally got them before the "strappers" could fix their joint.

On the "pioneer car" there was the engineman for the stationary engine that ran the tram rollers, & one of the train crew to give signals to the locomotive engineman by means of whistle signals from the stationary engine. There were 3 men on the tie cars



GROUND FLOOR PLAN.

MCADAM JUNCTION STATION, C.P.R.

throwing ties into the trams or chutes with "picaroons," 1 man on the tool car dropping off bolts & tie plates & 2 spike peddlers distributing spikes for each tie. The back gang consisted of 2 men lining, spacing & squaring any misplaced ties, taking off the bridles, & putting the tie-plates under the rails; 1 man picking up bridles & sending them to the front in a long narrow box over the tie trams; 4 or 6 gangs of spikers (each consisting of 2 spikers & a nipper), & finally 2 back bolters. This force would lay a pair of rails a minute, or sometimes a little better. It averaged 1,000 ft. of track an hour; & always had to lay the 4 cars of steel, besides putting up & taking down the tramways or chutes before stopping for dinner. They would do the same in the afternoon. The night crew did the switching at noon, making up the material train for the afternoon, & at night brought up the loads required for the next day. Ordinarily camp cars & stock of material were within 10 miles of the front. Ample motive power was necessary, so the train must be able to start quickly at each move. Two medium consolidated locomotives proved rather slow for handling the 14 loads on a grade of 22%. No cars without air brakes should be loaded for the front.

The "machine," by which is meant the train equipped with the appliances already mentioned, would work on curves of 14°, but not on a temporary curve of 22° on which it was tried. Mr. Dennis considers that the new "tie distributor" will work when it is made stronger, & then by having 2 gangs of heelers the machine will lay twice the amount of track, & the train need never come to a full stop. It is possible with iron cars or rail cars to put on enough men to lay more tracks by hand than with the machine, but this is more expensive, & it is very difficult to regulate the expansion, as one strapper will steal from the next one, & the rails are dropped so carelessly for long stretches that the bolts can hardly be got in. The gauging & spiking are also done hurriedly to let the train come up, & under this system, generally speaking, the track is dropped down rather than laid.

"American Grain Elevators" is a handsomely illustrated booklet giving the story of the grain elevator from its start, methods of construction, &c. It also contains illustrated descriptions of elevators built by John S. Metcalf Co., of 1075 West Fifteenth St., Chicago, Ill., including the G. T. R. elevator at Portland, Me., & the Canada Atlantic elevator, at Coteau Landing & Depot Harbor.

C.P.R. Projected Lines.

Following are the lines which the Co. has been authorized to build by legislation passed at the Dominion Parliament's last session:

From the Deloraine extension of the Souris branch, at or near Deloraine, to township 1 or 2, thence westerly for 100 miles. A portion of this, the Deloraine-Waskada branch, 18 miles, has been built this year.

From at or near Napinka on the Souris branch to a junction with the northwest extension of the Souris branch.

From the Manitoba South-Western Colonization Ry., between Manitou & Pilot Mound, to or near the international boundary. Part of this line, the Snowflake branch, 17½ miles long, has been built this year.

From the Souris branch between Lauder & Menteith, to between Glenboro & Treesebank on the Glenboro extension of the Souris branch.

From at or near Osborne on the Pembina Mountain branch, to the Manitoba South-Western Colonization Ry. between Cartwright & Boissevain.

From at or near Otterburne on the Emerson branch, to or near Stuartburn in township 2, range 6 east.

From at or near West Selkirk, northerly about 60 miles through ranges 3 or 4 east, to the west shore of Lake Winnipeg, thence direct northwesterly to the Little Saskatchewan River, distant not more than 6 miles from Lake Winnipeg.

From at or near New Westminster to Vancouver.

The Montreal, Ottawa, & Georgian Bay Canal Co.'s Act, assented to by the Governor-General recently, provides that the powers conferred on the Co. shall cease unless some of its canals are commenced by May 1, 1902, & \$50,000 expended thereon, or if the canals are not completed by May 1, 1908.

Quebec Central.—Gross earnings for May, \$44,332.09, against \$41,661.85 in May, 1899. Working expenses, \$29,772.76, against \$26,263.75. Net earnings, \$14,559.33, against \$15,398.10. Gross earnings for June, \$52,399.80, against \$51,040.23 in June, 1899. Working expenses, \$33,039.50, against \$31,074. Net earnings, \$19,360.30, against \$19,966.23. Gross earnings, Jan. 1 to June 30, \$235,686.77, against \$218,558.29 for corresponding period of 1899. Working expenses, \$164,273.13, against \$149,210.20. Net earnings, \$71,413.64, against \$69,348.09.

RAILWAY DEVELOPMENT.

Projected Lines, Surveys, Constructions, Betterments, Etc.

Alaska.—Railway building in the far north is one of the features of the rush to that country which began with the discovery of gold in the Klondike in the fall of 1896, followed by the discoveries at Nome, Koyukuk & other places in Alaska. The most northerly railways in the world will be the Nome & Port Safety road, & the line to the Wild Goose mining district from Nome, both of which are expected to be completed & in operation during the present summer. Next to these lines is the proposed line from Nome, or rather from the end of the Nome & Port Safety line, at Port Safety, to Katmai, around by the mainland & across the mouth of the Yukon river & through the Kushkequim country, reaching the coast at a point opposite Kodiak Island, which is open to navigation generally at all times of the year. This will put the Nome country in direct communication with the outside world.—Railway World.

The Alaska Exploration Co. is said to contemplate the construction of a railway to its coal mines, which are located on Coal Creek.

Alberta Ry. & Coal Co.—Some of the U.S. railway papers have stated that an extension is proposed from Lethbridge, Alta., north via Cardston to Swift Current, to connect with mines. This is ridiculously erroneous. Cardston is not north of Lethbridge, but southwest of it, while Swift Current is in the opposite direction on the main line of the C.P.R. The papers in question have probably got mixed up with the projected St. Mary's River Ry., reference to which will be found under that head further on.

Algoma Central.—The Dominion act incorporating this Co., passed in 1879, empowered it to build a railway from or near Sault Ste. Marie to the main line of the C.P.R., at or near Dalton, thence southwesterly to Michipicoton Harbor. An amendment was passed last session changing the route from Sault Ste. Marie to a point between Magpie & Michipicoton rivers, thence to the main line of the C.P.R., & southerly to Michipicoton Harbor.

The branch from Michipicoton Harbor, to connect with the main line between the Sault & the C.P.R. Co.'s transcontinental line, has been completed 12 miles to the Helen iron mine, has been inspected, & is now carrying passengers & freight. Some 250 men are at

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work at the mine, from which large shipments of iron ore are being made to Michipicoton Harbor, where the ore is shipped on the Co.'s steamers, 4 of which were recently brought out from England, & conveyed to Midland, Ont., for smelting. The ore dock at Michipicoton Harbor is 750 ft. long & 27 ft. wide at the bottom, 18 ft. wide at the top & 64 ft. high, running full length out into the bay. It supports 12 ore pockets, each of which holds one car load of 50 tons of ore. About 1,500,000 ft. of pine & spruce were used in its construction. The commercial dock, which is about 300 ft. from the ore dock, & parallel to it, is 300 ft. long & 40 ft. wide. Vessels drawing 20 ft. of water can tie up on either side of it. (June, pg. 174.)

Arthur White, Division Freight Agent of the C.P.R. at Toronto, who recently went over the branch from Michipicoton Harbor, said in an interview on his return:—"At the Helen mine he viewed with astonishment a mountain of almost pure brown hematite ore, which after careful tests by diamond drills is estimated to contain over 30,000,000 tons. The ore is being worked from the face of the mountain, the foot of which is almost on a level with the steel iron ore crusher now being placed in position for the purpose of crushing the ore, consequently the labor question is on the most economical basis, as, in the first place, the ore being so rich is dropped down the face of the mountain with very small blasts, & gravitation does nearly the whole of the business after that through the crusher & down the railway to the trestle works at the harbor, the line being on a grade down hill of 3 in 100, with only one exception, where it crosses the Magpie River, when the up grade for a short distance is against the traffic 1 in 100. The line is being equipped with 100-ton locomotives, & 50-ton capacity pressed steel cars for the ore. The ore in the first place has been disposed of to the new smelting works at Midland. Shipments will also be made to Hamilton & Deseronto, possibly to Montreal, & in addition, largely to the U.S. After the Co. had got through with the testing of the Helen mine, water was required for the steam boiler in connection with the ore crusher, & a lateral shaft was run into a mountain about three times as large as Mount Royal at Montreal, but in place of getting water the officials were agreeably surprised to find a continuation of brown hematite ore, & they ran 2 lateral shafts into this second mountain a distance of 250 ft. each, & about 5 ft. square, finding nothing but a continuation of the best of brown hematite ore. The line from Michipicoton Harbor to the Helen mine is most picturesque, being a continuation of beautiful lakes, having outlets by falls similar to the one at Montmorency, & in addition to the beautiful scenery it runs through a virgin country for forest products. The streams are full of trout, catches of fish averaging from 20 to 24 in. long being the rule, & not the exception. It is the intention to erect a summer hotel. Villages have sprung up, principally populated by miners & railway employees, & there are now already perma-



CANADIAN PACIFIC RAILWAY ELEVATORS AND DOCKS AT ST. JOHN, N.B.

nently settled along the railway between 600 & 700 men, most of them in comfortable residences, & none under canvas, while less than a year ago the whole population of the district was represented by two Indian families."

The main line is also under construction from Sault Ste. Marie towards Missanabie, on the main line of the C.P.R., the first 20 miles being under contract to J. Conmee, & the next 50 miles to Fauquier Bros. Foley Bros. & Co., of St. Paul, Minn., are also said to have secured a contract for 100 miles. It is expected that 20 miles will be completed early in Sept. Large docks are being built at the Sault in connection with this line, as there will be extensive shipments of pulp-wood timber, etc., brought down. (June, pg. 174.)

Particulars of the aid given by the Ontario Legislature to this Co. appeared in our May issue, pg. 143. At its recent session the Dominion Government gave a cash subsidy of \$160,000 for 25 miles on the branch from Michipicoton Harbor, & for 25 miles from Sault Ste. Marie towards the main line of the C.P.R., 50 miles in all.

It is said the Co. has secured running rights over the C.P.R. bridge across the St. Mary's River at Sault Ste. Marie, which will enable it to reach Sault Ste. Marie, Mich., & run into that city over the line of the Michigan Lake Superior Power Co.

The ratepayers of Sault Ste. Marie, Ont., by a vote of 412 for & 19 against, recently carried a by-law granting concessions to the Co.

The Co. is seeking to prevent F. Ferry & Co., lumbermen, from crossing its line by a short railway to get their lumber out.

See also under heads "Manitoulin & North Shore Ry.," & "Ontario, Hudson's Bay & Western Rys. Co."

Arthabaskaville.—The Dominion Parliament at its recent session granted a subsidy of \$38,400 for 12 miles of this line from Victoriaville to Chester West, Que.

Atlantic & Lake Superior.—C. N. Armstrong, the promoter, is credited with saying that arrangements had been made between the shareholders & the bondholders by which the latter were given control of the road for the purpose of completing it, & that a representative of the bondholders was making arrangements for the immediate prosecution of the work by C. R. Scoles, of New Carlisle, as contractor. Joaquim Galindez, of London, Eng., was in Canada in July, & stated that after inspecting the line & interviewing interested parties, he had taken over the Baie des Chal-

eurs section on behalf of the bondholders' trustees, & that the uncompleted section to Paspebiac would be finished. Hon. Mr. Casgrain has been appointed to represent the bondholders in Canada. (Feb., pg. 41.)

A sheriff's sale of the line advertised for July 19 was postponed, C. N. Armstrong having filed two oppositions.

Bay of Quinte.—At the last session of the Dominion Parliament an act was passed extending the time for the completion of this railway for 5 years from the passing of the act. The Co. was also given extensive powers in regard to carrying on the business of generating & distributing electric power & energy & other motive power, also in regard to carrying on mining & timber business, & to deal in letters patent, franchises or patent rights. The bill as originally introduced met with some opposition in regard to the place & date of holding annual meetings. The head office was fixed at Deseronto, the directors being given power to change it by by-law. The annual meeting is to be held on the second Monday in Sep. of each year.

Between Deseronto & Deseronto Jct., about 4 miles, 65-lbs. rails are being put down in place of 50-lbs ones.

Bout de L'Isle-Charlemagne Bridge.—At the recent session of the Dominion Parliament \$150,000 was voted towards building a single track standard railway bridge with 2 roadways, 10 ft. wide, from Bout de L'Isle to Charlemagne, at the junction of the Ottawa & St. Lawrence rivers.

Bracebridge to Baysville.—At the last session of the Dominion Parliament, a cash subsidy of \$48,000 was voted towards the construction of a railway from Bracebridge to or near Baysville, not exceeding 15 miles.

Brazil Lake to Kentville.—The Dominion Parliament last session voted a cash subsidy of \$35,200, to build 11 miles of railway from Brazil Lake, on the Dominion Atlantic, to Kentville, N.S.

Bridgetown & Victoria Beach.—See Granville & Victoria Beach.

The Canada Eastern is being ballasted from Fredericton for 20 miles along the line. The bridge over the southwest Miramichi is being replaced by a substantial structure.

Carleton & Miramichi.—The Dominion Parliament last session voted a subsidy of \$15,400 for a railway from Bristol on the C.P.R., southwesterly 17 miles. (May, pg. 143.)

Canadian Northern.—On the Ontario section ballasting has been completed on the first 40 miles west from Stanley Jct., & track is now being laid on the second 40 miles, on the whole of which grading has been completed. On a further section of 45 miles about 40% of the grading has been done, & it is expected to complete this & lay track on it this year, which will place the end of track at Karribus Creek, a few miles beyond the Atikokan iron range, a distance of 125 miles from Stanley Jct. & 140 miles from Port Arthur. The grading contractors are D. McGillivray & Co., J. A. McDonell, L. Madigan, J. R. Turnbull, Jas. Anderson, H. Mann & A. R. Mann. J. R. Turnbull also has the contract for bridging. He has completed the Kaministiquia truss bridge, & is now building the Mattawan truss bridge. About 1,000 men are at work. It is expected to complete the line to Rainy River next year. (June, pg. 174.)

Rainy River, which forms the International Boundary between Canada & the U.S., will be crossed at Cathcart's Point, a few hundred feet below the confluence of Baudette River with Rainy River, & about 30 miles from Lake of the Woods. The bridge will be about 1,000 ft. long. It will have 5 piers, the centre one supporting a swinging span of 360 ft., which will give 2 channel openings of 160 ft. each. The plans have been approved by the U.S. Secretary for War, & have been submitted to the authorities at Ottawa. (June, pg. 174.)

On the Minnesota section, running through that State, between the south-east corner of Manitoba & Rainy River, track has been laid to Warroad, 116 miles from St. Boniface, Man., grading from Warroad to Rainy River is being proceeded with, & it is expected the rails will reach the River during September. (June, pg. 174.)

On the Manitoba section the track was completed last year to 218 miles northwest of Gladstone Jct., & the line has been opened for traffic to Bowsman, 195 miles from Gladstone Jct. There is also a branch of about 23 miles from Sifton Jct. to Winnipegosis. The main line is now being rapidly pushed on towards the northwest angle of Manitoba, from which it will be extended to Prince Albert, Sask. It is expected to build about 150 miles this year. The Dominion Parliament, in 1899, voted \$320,000 towards the construction of the line north of Swan River, towards Prince Albert, & last session made a further grant of \$320,000 for another 100 miles, which will carry the line into Prince Albert, which place it is expected to reach next year. It is

possible that some work may be done on the branch from the northwest angle of Manitoba towards the Great Saskatchewan River, en route to Hudson's Bay, but this does not seem to have been decided. About 1,000 men are at work. (June, pg. 175.)

On the Gilbert Plains branch, which leaves the main line 2 miles northwest of Dauphin, & 86 miles northwest of Gladstone Jct., 6 miles were built last year, & the remaining 19 miles will be built this year. The Manitoba Legislature has ratified the agreement between the Greenway Government & the Co. granting aid towards the construction of this branch. (Apl., pg. 111.)

The Victoria, B.C., Times recently stated that the money for the Canadian Northern Ry. from Lake Superior to the northern coast of British Columbia, with a branch line to Dawson, Yukon, had been subscribed in London, Eng. This is undoubtedly somewhat premature, & the Times has probably got mixed up about the bonds which the Co. recently put on the English market in connection with the building of a line from Port Arthur to the Saskatchewan river.

Central Ontario.—Grading & track laying have been completed on the 21-miles extension from 2½ miles east of Ormsby to 1½ miles north of Bancroft. Ballasting is being done as fast as possible, & it is expected the extension will be open for traffic early in Sept. (Mar., pg. 72.)

The directors have not come to any decision as to when further extension of the line to the Canada Atlantic, near Whitney, will be proceeded with. The Ontario Legislature has voted a subsidy of \$3,000 a mile for 40 miles of the further extension, & the Dominion Parliament last session voted \$64,000 for 20 miles of the same. (May, pg. 143.)

Central Vermont.—It is rumored that the Central Vermont Ry. Co. is trying to acquire the Orford Mountain Ry. from Eastman to Lawrenceville, Que., & that if it does a connecting link will be built between Waterloo, on the C.V. line & Lawrenceville, on the O.M. line.

The Dominion Parliament, at its last session, voted a subsidy of \$67,200 for a railway from Farnham to Frelighsburg, Que., & the International Boundary Line, not exceeding 21 miles. The Montreal & Province line operated over a portion of this route some years ago. The Central Vermont is behind the project. (June, pg. 175.)

Chateauguay & Northern.—The Dominion Parliament, last session, voted a subsidy of

\$134,400 towards the construction of this line from Hochelaga Ward, Montreal, to the Great Northern Ry. in or near Joliette, passing near L'Assomption, Que., with a spur into that town, not exceeding 42 miles in all.

The Comox & Cape Scott Ry. Co. was incorporated at the Dominion Parliament last session, with power to build from Comox district, on or near the 50th parallel of latitude, on or near the east coast of Vancouver Island, through Sayward & Rupert Districts, to Cape Scott or some other point at or near the north end of Vancouver Island. The provisional directors are J. Dunsmuir, R. M. Jeffrey, J. A. Lindsay, L. H. Solly & H. K. Prior, of Victoria, where the head office is situated. Mr. Dunsmuir is Vice-President of the Esquimalt & Nanaimo Ry., which runs from Victoria to Wellington, 78 miles, & the proposed line would doubtless be a subsidiary of that Co. (April, pg. 111.)

Cowichan Valley.—The Dominion Parliament last session extended the time for the commencement of this railway until June 13, 1902, & for its completion to June 13, 1905. The Co. was incorporated in 1898, the incorporators being Hon. G. A. Cox & R. Macdonald, Toronto; P. Long-Innis, New York; H. J. Wickham, Toronto; M. M., W. T. C., & H. Boyd, Bobcaygeon; J. G. Edwards & J. D. Flavell, Lindsay. The Co. is empowered to build a line from or near the mouth of the Cowichan River, Vancouver Island, following the valley of that river & Cowichan Lake to or near the head of Cowichan Lake, thence following the Franklin River to the Alberni Canal, at or near the mouth of the Fraser River, with a branch following the Nitinat River & Nitinat Lake to or near the outlet of Nitinat Lake.

Edmonton, Yukon & Pacific.—Mackenzie, Mann & Co. are said to have an option on this charter, but as far as we can ascertain it has not been transferred to them. (Apl., pg. 112.)

Gaspe Short Line.—The bill to incorporate this Co. passed the House of Commons last session, but was rejected by the Senate on the ground that it contained provisions that were not in the petition. (Apl., pg. 112.)

Golden Lake to Bancroft.—The Dominion Parliament last session voted \$64,000 towards building 20 miles of railway from the Pembroke Southern Ry., at or near Golden Lake, towards the Irondale, Bancroft & Ottawa Ry. at or near Bancroft, for the further extension westerly from the western terminus of the 20 miles granted in 1897.

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Grand Forks & Kettle River.—The Kettle River Valley Ry. scheme, which was rejected by the Railway Committee of the House of Commons last session, has come up in a new form, a bill having been introduced in the B.C. Legislature to incorporate Hon. J. R. Stratton, T. P. Coffee & F. M. Holland, of Toronto; G. H. Cowan, A. J. Kappelle & A. McEvoy, of Vancouver, as the G.F. & K.R. Ry. Co., with power to build a line from the Canadian side of the International Boundary at or near Cascade City along the westerly side of Kettle River to Carson on the same side of the boundary, & with power to build branch lines, etc.

Granville & Victoria Beach.—The Dominion Parliament last session voted a subsidy of \$96,000 towards the construction of 30 miles of railway from Bridgetown to Victoria Beach, N.S. (Oct., '99, pg. 294.)

The Great Northern of Canada has been constructed from Riviere a Pierre, on the Quebec & Lake St. John Ry., to a connection with the Canada Atlantic Ry. at Hawkesbury, 172½ miles; branch to Shawinigan, 4½ miles; total constructed road, 177 miles. The line is all completed, except the bridge across the Ottawa River at Hawkesbury, which will, it is said, be finished, & the through line opened in September. The Lower Laurentian Ry., 39½ miles, has been purchased by, & forms a part of the G. N. Ry. One hundred miles of the latter's track is laid with 70 lbs. steel rails, & the remainder with 56 lbs. rails. The Co. has contracts running for 20 years with the Canada Atlantic & the Quebec & Lake St. John for interchange of traffic on a mileage basis. Under the charter of the Chateaugay & Northern Ry. the G.N.R. will build a line between Joliette & Montreal. It will be 36 miles long & will, it is said, be completed next spring, giving the G.N.R. direct entrance to Montreal where it will have its own terminals. (June, pg. 175.)

The Dominion Parliament last session voted \$64,000 towards building a branch not exceeding 20 miles, from or near Joliette towards Ste. Emilie, touching the parishes of Ste. Beatrix & St. Jean de Matha.

Great Northern (U.S.A.)—J. N. Hill, son of President Hill, is at the head of the Dakota & Great Northern Ry. Co., recently incorporated under the laws of North Dakota, with a capital stock of \$2,500,000, to build a line from near Lakota, on the main line of the G.N. northerly through several productive counties to near the International Boundary Line. This line will probably run between the G.N. branches which now terminate at Hannah, N.D., south of La Riviere, Man., & St. John, N.D., south of Killarney, Man.

The largest railway tunnel in the world is nearly completed through the Cascade Mountains, west of Kalispel, Mont. It is the pet scheme of President Hill, & will save the G.N. 12 miles & several hours in the transcontinental run. It will give it a shorter time from the Mississippi & Lake Superior to the Pacific than the Northern Pacific can make. By next Jan. G. N. trains will be passing under the Cascades instead of winding & backing over them. There are now 7 switchbacks over the mountains which the tunnel will wipe out. Eight years ago Mr. Hill put engineers in the field for the final reconnaissance of this tunnel. When he announced his plan many railway men laughed, & said it would bankrupt the road. It is, however, being built almost entirely from the surplus revenues of the road, largely from those of the Montana Central branch. The work since Jan. 1, 1897, has been entirely paid for by earnings above dividends. More than 2 miles is completed, & 1-3 of a mile remains. Almost 1,000 men are at work with the latest & most powerful appliances. The sum paid for labor to date is nearly \$3,000,000, & the tunnel will cost more than \$4,000,000. Aside

from the time & distance saved the tunnel will avoid the difficulty of keeping open for more than 7 months of each year passes where snow often falls to an extraordinary depth. Transcontinental freight will be carried more cheaply, & it is to transcontinental freight destined for the Orient that Mr. Hill looks for the future of his system. He is shaping his affairs to the end that he can carry freight from any part of the eastern U.S. to the Orient at the lowest possible cost, & he is quoted as saying recently, when coming back after an inspection of the tunnel, that in 10 years the traffic for China would require a double track from Duluth to Seattle. His road is now receiving steel rails & other export goods taken by rail from the Atlantic tide-water to the lakes at Buffalo, & thence by his ships to Duluth, consigned for Honolulu & Nagasaki. With the construction of the freighters building at New London, Conn., & new & larger freighters for the lakes, together with the new tunnel, a still lower rate will be made. The new lake freight ships will soon be built. (May, pg. 143.)

A recent press report credits this Co. with the intention of building a line to Phoenix, B.C., to connect with the Greenwood & Phoenix Tramway Co.'s proposed line from Greenwood.

President Hill is credited with stating that he will not build a branch into the mining camp at Republic, Wash., this year, as was his intention, as the outlook is such as to render it necessary for the Co. to cut down expenditures.

Haliburton towards Mattawa.—The Dominion Parliament last session voted \$128,000 towards the construction of a line from Haliburton via Whitney, towards Mattawa.

The Halifax & Yarmouth has 50 miles in operation between Halifax & Barrington Passage. The second lift of ballast has been put on the section between East Pubnico & Barrington Passage, opened Jan. 15 last, thus completing the road in accordance with the requirements of the Government specifications. Location surveys are in progress between Barrington Passage & Shelburne, 26 miles. Some little work was done on this section last year, a portion of the clearing, about a mile of grading & fencing & some of the masonry being completed. In regard to the rumor that the H. & Y.R. Co. was likely to be amalgamated with the Dominion Atlantic, we are authorized to say that the matter has never been considered in any way by any of the directors or stockholders of the H. & Y. Co. (Apl., pg. 112.)

Halifax Towards Central Ry. of N.S.—The Dominion Parliament last session voted \$64,000 towards the construction of a railway from Halifax towards the Central Ry. of N.S. in the county of Lunenburg. This is in addition to & in extension of 20 miles subsidized in 1899.

Intercolonial.—The Dominion Parliament last session voted the following amounts chargeable to capital, for betterments, etc., in addition to other amounts voted for equipment:

Increased accommodation at Halifax.....	\$ 5,000 00
Increased facilities along line.....	60,000 00
Snow fences.....	5,000 00
Dredging at Pictou Landing.....	2,550 00
Sidings.....	12,500 00
Grain elevator at St. John.....	32,000 00
Grain elevator at Halifax.....	21,500 00
Equipment of stations, etc.....	6,300 00
Building for baggage & express at Truro.....	2,000 00
To extend dyke at Lepers' Brook, Truro.....	300 00
Iron highway bridge, Rocky Lake.....	5,000 00
Additional houses for engines.....	80,000 00
Balance due on Halifax cotton factory branch.....	5,802 00
Freight shed & to improve station at Rockingham.....	1,800 00
To extend cotton factory branch at Halifax.....	70,000 00
To extend coal trestle at Stellarton.....	3,500 00
To increase station accommodation at Westville.....	8,000 00
To increase accommodation at Sydney.....	39,000 00
Sidings at Stellarton, near Albion Mines.....	2,500 00

To re-arrange, enlarge & extend station yard at Truro.....	9,500 00
To increase accommodation at Halifax.....	16,200 00
Improvements at Mulgrave.....	25,000 00
To complete subway at Christy's Brook, Amherst.....	1,800 00
To increase accommodation at Amherst.....	3,500 00
Original construction.....	2,000 00
Land damages on Oxford, New Glasgow & Cape Breton divisions.....	2,000 00
To strengthen bridges.....	100,000 00
Improved accommodation & facilities along the line of railway.....	104,000 00
To increase facilities along the line.....	112,800 00
To increase accommodation at Levis.....	110,000 00
Additional sidings along line.....	105,500 00
Three travelling steam derricks.....	30,000 00
New steel bridge at Etchemin—additional cost.....	22,000 00
To increase accommodation at St. John.....	203,000 00
To dredge & blast rock at Halifax.....	11,000 00
To raise Sydney & Louisburg Ry. bridge.....	3,300 00
To improve ferry service at Strait of Canso.....	250,000 00
To extend I.C.R. to Copper Crown Works, Pictou.....	20,000 00
Rolling stock.....	400,000 00
Steel rails & fastenings.....	420,000 00
Grain elevator at St. John.....	2,000 00
Towards strengthening iron bridge.....	80,000 00
Building new & enlarging old engine houses.....	60,000 00
Improvements at Point Tupper.....	7,000 00
Towards building sea wall in Cape Breton.....	8,000 00
Larger turntables.....	11,000 00
Improvements at Mulgrave.....	10,000 00
Towards constructing subway at Christie's Crossing.....	3,500 00
Improving telegraph service.....	12,000 00
Towards building rest houses at engine stations.....	3,000 00
Drop pits.....	5,000 00

Hon. R. R. Dobell has notified the Mayor of Levis that the proposed improvements there will soon be begun, including a new station & new wharves, involving an expenditure of about \$300,000. It is said the old station will be used as a customs house & post office. (June, pg. 175.)

The third floor of the office building at Moncton, heretofore used principally as store rooms, has been fitted up for offices, & is being occupied by the audit, freight claims, advertising & maintenance of way departments.

An official is reported to have stated that 10,000 tons of 80 lbs. rails have been ordered in the U.S. to relay track in Cape Breton.

Additional land has been secured at Sydney, N.S., & will be used for tracks & freight sheds necessitated by the growing business at that place.

I.C.R. Pictou Branch to Kempton.—The Dominion Parliament last session voted \$14,400 towards constructing 4½ miles of railway from the I.C.R. Pictou branch to Kempton, N.S.

Interprovincial Bridge, Ottawa & Hull.—Work is proceeding rapidly on the superstructure, & it is hoped to have the bridge completed in Oct. or Nov. (July, pg. 195.)

The Dominion Parliament last session voted \$100,000, in addition to \$112,500 previously granted, towards the construction of this bridge, on condition that it provide suitable facilities, to the satisfaction of the Minister of Railways, for vehicular & foot traffic the same as upon a public highway.

Inverness & Richmond.—Track was laid last year 30 miles from Port Hastings to 2 miles beyond Port Hood. On the second section of 30 miles to Broad Cove, about 75% of the grading has been completed, & track laying is going on with the intention of completing that section this year. It is probable that grading will be gone on with beyond Broad Cove towards Cheticamp, which is 110 miles from Port Hastings, the Dominion Parliament last session having voted \$128,000 towards the construction of 40 miles from Broad Cove towards Cheticamp. About 800 men are at work. (June, pg. 175.)

Station buildings have been decided on for the following points: Port Hastings, Port Hood, Mabou, Broad Cove, Creguish, Judique, Glencoe, Strathlorne, Long Point, Catherine's Pond & Glendyer. Enameled iron plates with white letters & dark blue ground, supplied by the Acton Burrows Co., Toronto, have been adopted as the standard for station names on this line instead of painted wooden signs.

Irondale, Bancroft & Ottawa Jct. to Minden.—The Dominion Parliament at its last session voted \$38,400 towards the construction of 12 miles of railway, from or near the junction of the I. B. & O.R. & the G.T.R. to Minden.

Kingston & Pembroke.—The Dominion Parliament last session voted \$38,400 towards constructing a branch of this line for 12 miles to iron mines in Bedford township.

Kootenay Ry. & Navigation Co.—Ballasting is proceeding on the line between Kuskanoek, B.C., & Bonners Ferry, Idaho, but no announcement has been made as to when it will be open for traffic. (Apl., pg. 114).

No further progress has been made with constructing the Kaslo & Lardo-Duncan branch, the grading of which was nearly completed last year from Argenta to Duncan City, B.C. The unsettled condition of the mining industry, etc., brought about largely by injudicious provincial legislation, has retarded the development of the district. Last session the Dominion Parliament voted \$96,000 towards constructing 30 miles of this branch from Duncan Lake towards Lardo or Arrow Lake, or from Lardo to Arrow Lake. (June, pg. 175).

Lake Erie & Detroit River.—The plans for the extension from Ridgetown to St. Thomas were approved June 23, & construction will soon be commenced. (June, pg. 175).

Lindsay, Bobcaygeon & Pontypool.—A meeting of the shareholders is to be held Aug. 27, to elect directors, after which the organization of the Co. will be completed. It is said that the survey will be started as soon after as possible & that construction is likely to go on this year. The name of W. T. Jennings, C.E., of Toronto, is mentioned in connection with the survey. The line is projected to run from Burketon, on the Montreal-Toronto line of the C.P.R., to Lindsay. (Mar., pg. 77.)

Lockeport to Sable River, N.S.—The Dominion Parliament last session voted \$64,000 towards constructing 20 miles of railway from Lockeport to Sable River, or some other convenient point of railway connection.

London & Port Stanley.—Mayor Rumball, of London, is endeavoring to secure the extension of this line so as to serve the factories in the east end of London & to connect with the C.P.R.

Lynn Canal Shore Line.—Articles of incorporation of this Co. have been filed. Its object is to construct a railway from the mouth of Skagway River, on Lynn Canal, near Skagway, to or near the mouth of Dyea River,

near Dyea. The capital stock is \$100,000 & the principal office is at Seattle, Wash.

Manitoba & Lake Superior.—Articles of incorporation have been filed at Duluth for a company under this name to build a railway & telegraph line from Duluth to the International Boundary between Manitoba & Minnesota. J. T. Rose, Northwestern Agent of the Canada Atlantic at Duluth, is one of the incorporators.

Manitoulin & North Shore.—At the last session of the Dominion Parliament an act was passed to incorporate a railway company under this name, the incorporators being J. McKay, R. A. Lyon, W. H. Hearst, & W. Brown, of Sault Ste. Marie, J. Cleland, of Meaford, T. J. Ryan, of Sudbury, T. C. Sims, of Little Current, & A. G. McKay, of Owen Sound. The Co. is empowered to construct a standard gauge railway from or near Little Current, Manitoulin District, northerly & easterly 100 miles to cross the main line of the C.P.R. at or near Onaping or Cartier stations, & also from or near the township of Drury or Hyman, on the above mentioned line easterly to Sudbury, & from or near Little Current southeasterly to the south shore of Manitoulin Island or Fitzwilliam Island, & from or near Tobermory, Bruce County, via Wiarton & Owen Sound to Meaford. This charter has been acquired by the owners of the Algoma Central Ry. charter. The approximate length of the lines between Sudbury & Manitoulin Island is 66 miles, 12 miles are already under contract to Fauquier Bros., from Sudbury to the Gertrude mine, a very rich nickel mine, which will be opened up as soon as possible & the ore shipped to the reduction works at Sault Ste. Marie. T. J. Kennedy, Genl. Superintendent of the Algoma Central Ry., has charge of this line also.

At the last session of the Dominion Parliament a cash subsidy of \$211,200 was voted for 66 miles of this line between Little Current, Manitoulin Island & Sudbury, the Co. undertaking to bridge between Little Current & the mainland, the bridge to be so constructed & maintained as to afford suitable facilities, in the opinion of the Minister of Railways & Canals, for free vehicular traffic, the same as upon a public highway, the work to be begun & prosecuted from Little Current & Sudbury, one-half of the subsidy to be applicable, as earned, in respect of the work beginning at Little Current & carried on towards Sudbury, & one-half to be applicable, as earned, in respect of the work beginning at Sudbury & carried on towards Little Current.

the railway to cross the Sault Ste. Marie branch of the C.P.R.

Michigan Central.—Eighty pounds steel rails are being laid between Welland & Cayuga, which will complete the laying of the Canadian division with heavy steel.

It is said the Co. will build an iron bridge at London st., Windsor, Ont.

Midland of N.S.—It is expected that the bridge over the Shubenacadie river will be completed about Nov. or Dec., which will enable the line to be opened for traffic. (Apl., pg. 114.)

Moncton & Buctouche.—Considerable work has been done this season strengthening & renewing bridges.

Montford & Gatineau Colonization.—The Dominion Parliament last session voted \$96,000 towards constructing 30 miles of this line from Arundel to Preston township near Hartwell, Que. It also empowered the Co. to extend its railway from its present terminus near St. Sauveur to the Great Northern Ry. near St. Canut, thence to a junction with the Jacques Cartier Union Ry. near Montreal.

Morris & Portage.—The Dominion Parliament last session incorporated a Co. under this name with power to build a railway from or near Morris, or from or near Union Point, to Portage la Prairie, Man. The incorporators are: F. M. Bell, Morris; T. H. & C. Metcalfe, Portage la Prairie; J. R. Grant, H. E. Sharpe & W. A. Cavanaugh, Winnipeg.

Nicolet River Bridge. The Dominion Parliament last session revoked \$15,000 towards constructing a railway bridge over the Nicolet river at Nicolet, in lieu of the grant made in 1899.

Nipissing & James' Bay.—Early in July the Secretary notified the Mayor of Parry Sound that the Co. would construct about 5 miles of the line, so as to connect the Canada Atlantic Ry. with the town of Parry Sound, in consideration of a cash subsidy of \$20,000, of free right of way through streets & property owned by the town, of a grant of waterfront property & property adjacent thereto owned by the town & of exemption from taxation for 20 years. A by-law granting \$20,000 to the Co. was carried by a majority of 185 ratepayers on Aug. 7. It is said the other concessions asked will be arranged by the Council. (Dec. '99, pg. 352.)

The Dominion Parliament last session extended the time for the commencement of this Co.'s railway to Lake Tamagaming until July

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9, 1901, & further extended the time for the completion of the line.

The Dominion Parliament last session voted \$64,000 towards constructing 20 miles of this line from or near North Bay, on the C.P.R., towards James' Bay or Lake Taming.

The Dominion Parliament last session voted \$112,000 towards constructing 35 miles of railway from a point northerly 20 miles from Parry Sound to the French River.

Northern Pacific.—President Mellen, when in Winnipeg at the end of July, said there was no likelihood of the Manitoba hotel being rebuilt this year, but that the question of rebuilding was still under consideration.

The branch from Portage la Prairie to Oakland, 9 miles, built last year, is being extended some 4 or 5 miles to Lake Manitoba. A 700 ft. pier will be built at the lake, which will give a depth of 12 ft. of water for vessels. (Apl., pg. 115.)

The Co. has built a short spur line connecting its Morris-Brandon branch with the exhibition grounds at Brandon.

Contractor J. D. McArthur is reported to be building an extension of the Souris branch from Trackend to Hartney, about 5 miles. (May '99, pg. 136.)

Norwood to Apsley.—When a delegation from Peterboro County, Ont., interviewed President Shaughnessy, of the C.P.R., in regard to the construction of a branch from Norwood, on the Montreal-Toronto line, 18 miles east of Peterboro, to Apsley, in the northern part of the county, some 25 miles, in April last, he recommended the formation of a local company & the obtaining of a charter, & said that if the usual Government subsidies were secured the C.P.R. would arrange to build the line & operate it. We are informed that the suggestion is about to be acted upon, that an application for a charter will be made at the next meeting of the Ontario Legislature, & that the usual subsidies will be asked for. J. B. Pearce, of Norwood, is one of the principal promoters. (May, pg. 140.)

The Nova Scotia Steel Co. is reported to have decided to build a railway from North Sydney, N.S., to Point Aconi through the heart of the coal deposits it has purchased from the General Mining Association.

Ontario, Hudson's Bay & Western Railways Co.—In 1890 the Dominion Parliament incorporated the Sault Ste. Marie & Hudson's Bay Ry. Co., the provisional directors being J. Cozens, R. D. Perry, J. G. Stradley, T. W. Burdick, J. H. Steere, J. A. McDonald, W. McK. Bell, W. McK. Simpson & J. McKay, with head office at Sault Ste. Marie. The Co. was empowered to build a standard gauge railway from or near Sault Ste. Marie to the main line of the C.P.R. between Dalton & Ridout stations, thence northerly & easterly to or near Moose Factory, James Bay. The name was subsequently changed to the Ontario, Hudson's Bay & Western Rys. Co. The charter is said to have been secured in the interest of the Algoma Central Ry., & it is said that it will be made use of to extend the A. C. main line from Missinabie to Hudson's Bay.

Ottawa & New York.—A Cornwall despatch of Aug. 3 said: It is expected the work on the bridges across the north & south channels of the St. Lawrence at Cornwall will be completed & the structures ready for traffic by Sept. 15. The shore span in the south channel, which was swung about two weeks ago, is all riveted up, the false work & piles removed, & the water under it clear. The strength of the current rendered it inadvisable to use wooden piles to support the false work of the centre span, & 24 steel piles were secured. They are 50 to 60 ft. long, of 15 in. channel steel, connected by lattice work, & most of them have been driven. The erection of the false work is close behind the pile

driving, & early next week will be ready for the erection of the middle span. In the north channel the foundation of pier 8 at the toe of the canal bank is finished & 8 courses of masonry laid. The steel caisson around pier 7 is resting on the rip-rap at the bottom of the river. This material, which was dumped in after the accident two years ago, has been mostly removed, & the caisson rests about on the original bed of the river. The entire steel work is under water, only a timber extension which will afterwards be removed showing. The caisson will be filled with concrete & laid to the original foundation with wire ropes embedded in concrete.

The Dominion Parliament last session voted \$90,000 towards the construction of the Canadian portion of the Cornwall bridge.

The N.Y. & Ottawa Ry. Co., an allied Co. of the O. & N.Y.R., recently brought suit against the Collins Bay Rafting & Forwarding Co., to recover damages upon a contract between the parties & for other relief. The contract was for the removal of two wrecked spans of bridge in the south channel of the River St. Lawrence south of the International Boundary. The case was tried at Cornwall, Judge Street delivering judgment, declaring that defendant had duly prosecuted its work without breach & was entitled to \$5,000 of the contract price for removing the southern span of the bridge, & \$5,000 more for putting it on the shore, & dismissing action with costs without prejudice to plaintiff's right, if so advised, to bring any further action or actions for any other or later breaches of the contract. Judgment was given for defendant on its counterclaim for \$5,000 (in addition to the \$5,000 already paid it) & counterclaim dismissed without costs as to balance claimed without prejudice to its right to recover in any future action the balance of the contract price if it showed itself entitled on the ground of completion of contract or any other grounds save those in paragraphs 8, 9 & 12 of defence & counterclaim. Stay until Oct. next.

After several months of negotiation the O. & N. Y. R. is said to have concluded the purchase of property for its freight terminus in Ottawa. Owing to the fact that approaches could not be secured to the terminal property originally purchased adjacent to the Central station, it became necessary to secure a new location. The Co. will now proceed with the erection of such buildings as may be necessary for the carrying on of its freight traffic. It is expected that the car shops will be erected within the city limits between now & autumn, when the works will be removed from Santa Clara, N.Y.

Ottawa, Brockville & St. Lawrence.—The Dominion Parliament last session incorporated a railway company under this name, with power to build a railway from or near Ottawa through the counties of Carleton, Grenville & Leeds, to or near Brockville, but not to build or operate a street railway in Ottawa or Hintonburg or to build or operate a railway within a mile of the Ottawa Electric Ry. at Britannia. The Co. is given powers to generate & distribute electrical power & energy, & to operate a ferry from Brockville across the St. Lawrence to Morristown, N.Y. The incorporators are A. McLean, J. Straton, G. E. Kidd, & C. W. F. Gorrell, of Ottawa; D. Derbyshire & D. Downey, of Brockville; A. E. Baker, R. W. Watchorn & G. B. McGee, of Merrickville. The capital stock is to be \$500,000, & the Co. may issue bonds, etc., for \$25,000 a mile.

Parry Sound Northerly.—The Dominion Parliament last session voted \$112,000 towards constructing 35 miles of railway from a point northerly 20 miles from Parry Sound to the French River.

Port Arthur, Duluth & Western.—Considerable alterations will be made in the terminal yards at Port Arthur before winter sets

in. A good deal of work is being done on the line putting in ties & fixing up the track generally so as to have it in shape for the winter work.

Prince Edward Island.—Contractor McManus, of Memramcook, N.B., having become mentally disqualified, the contract given him for building 11½ miles of the branch from Charlottetown towards Murray Harbor was cancelled & given to W. Kitchen, of Fredericton, N.B., who purchased Mr. McManus' outfit, timber, etc., & started work June 19. The contract starts at Mutch's Point, at the Southport end of the bridge to be built from Charlottetown over the Hillsborough River. Along the 11½ miles of line are 8 chains of bogland & 41 acres of woods. The grading will be easy, most of the soil being sandy loam. The deepest cutting will be 9 ft., the deepest fill 20 ft., & the highest dump 10 ft. There will be 11 public road crossings & 35 culverts, ranging from 2½ x 2½ ft. to 6 x 8 ft. The maximum gradient will be 1¼%, considerably less than that of the main line. Two-thirds of the 11½ miles will be tangents. The maximum curvature will be 6° as compared with 10° on the main line & the average curvature will be about 3½°. The width of the right of way is 99 ft., that of the main line being only 66. The width of grade on top will be 16 ft., against 14 on the main line. (June, pg. 176.)

The Dominion Parliament last session voted \$700,000 for the construction of this branch, including the Hillsborough River bridge.

Under an agreement between the Dominion Government & the Province of P.E.I. ratified at the Dominion Parliament's last session, the Dominion Government undertakes to build a railway & highway bridge over the Hillsborough River from the shipyard in Charlottetown to Mutch's Point on the Southport side. The Province is to pay the Dominion \$9,750 a year towards the interest on the cost & maintenance of the bridge, instead of \$12,000 a year as originally agreed on, & is to keep the flooring of the highway portion of the bridge in repair, also to light the highway portion, the Dominion maintaining the rest of the bridge. The Province is to have the exclusive right to levy tolls on the bridge, except for railway traffic & railway employees.

The specifications issued for the substructure of the bridge call for 11 stone & concrete piers, 4 of which & possibly 5 are to be founded on bed rock by the pneumatic process, the others to have pile foundations. The masonry is to be ranged rock work of the best description in regular courses. From 4 ft. below low water to the top the best hard, fine, bluish grey Wallace sandstone is to be used. (June, pg. 176.)

In addition to the amount above mentioned for the Murray Harbor branch & bridge, the Dominion Parliament last session voted \$710, chargeable to capital account, for increasing the accommodation at Summerside, & \$3,000 to shorten the main line by removing curves. It is said that the latter amount will be spent on the western end of the line & that W. Kitchen, of Fredericton, N.B., has been given the contract.

Quebec Bridge.—The contractors, Davis & Son, have 150 men at work, & expect to have 400 by Sept. It is the intention to have the two anchor piers finished before cold weather arrives. The bridge will stretch from a point just south of the Chaudière on the south side of the river, to Cap Rouge on the north side. Granite quarries at Rivière à Piere, on the Lake St. John Ry., 60 miles from Quebec, have been secured. The quantity of masonry is estimated at 50,000 cubic yards, 5,000 of which will be finished when work is closed down about Nov. 15. Besides the two abutments—one on the Quebec, and the other on

the Lévis side—there will be two anchor piers & two great river piers, the latter supporting a span of 1,800 ft., said to be the longest ever designed. The cantilever span on the Forth bridge is 1,710 ft., 90 short of the St. Lawrence bridge's central span. From each abutment to its neighboring pier the distance is 400 ft., & the anchor spans are 500 ft. each. Thus the total length of the bridge from abutment to abutment is to be 3,600 ft., rather more than two-thirds of a mile. Though the anchor piers are to be completed this autumn, it is expected that two seasons will be required for the building of the monster piles known as the river piers. The contractors have until Oct., 1902, in which to get the substructure built. Next May one of the inner piers is to be commenced. Pneumatic caissons 168x50 ft. & 50 ft. high, are to be built this winter, to be launched when required. The contractors' engineer is A. A. Stewart, of New York. The steel superstructure will weigh about 40,000 tons. Single pieces will leave the shop weighing as much as 110 tons. The bridge is to have a double track, & the engineers claim that it will bear the weight of as many 150-ton loco-

motives as can be crowded on both tracks. There will also be a double track tramway & a double track carriage way. (June, pg. 176.)

Restigouche & Western.—The Dominion Parliament last session voted \$96,000 towards building 30 miles of this line, in addition to the 15 miles subsidized by 62-63 Vic., chap. 7, on the easterly section of the line, & in continuation from the westerly end of that 15 miles, a further 15 miles towards the St. John River, & in addition to the 12 miles subsidized by the said chapter on the westerly section of the line, a further distance from the easterly end thereof of 15 miles, towards Campbellton, N.B., not exceeding 30 miles. (April, pg. 116.)

The Dominion Parliament last session passed an act authorizing this Co. to construct a railway bridge across the St. John River, from the western terminus of the railway which the New Brunswick Legislature authorized it to construct on the east side of the river between Grand Falls & Madawaska, N.B. Should the site selected for the bridge be such that its western terminus will be in Maine, the Co. is not to commence erection until the U.S. Congress or the Maine Legislature has approved of the bridging of the river.

Rutland.—The northern end of this line from Burlington, Vt., to Rouse's Point is so far completed that freight trains are operating over it. It is expected it will be completed early in Sept. (June, pg. 176.)

Toronto, Hamilton & Buffalo.—The grading of the spur line of 4 miles in Hamilton has been completed, & the pile driving & upper work for the bridges has been done. Some delay has occurred at the G.T.R. under crossing which is a separate contract. An interlocking switch is being placed at the crossing with the N. & N.W. division of the G.T.R. It is said the construction will average about \$25,000 a mile. (May, pg. 145.)

White Pass & Yukon.—The portion of this line between Caribou & Whitehorse has been completed. The route is shown on the accompanying map. The route from Lake Bennett lies along the east shore of Lake Bennett to Caribou, 27 miles beyond Bennett, thence up the valley of the Watson River & along Lewis Lake, striking the Lewes River in the Miles canyon, 39 miles beyond Caribou, or 112 miles from Skagway. On the map the name "Closeleigh" has been given to the town site of Whitehorse, but the name has recently been



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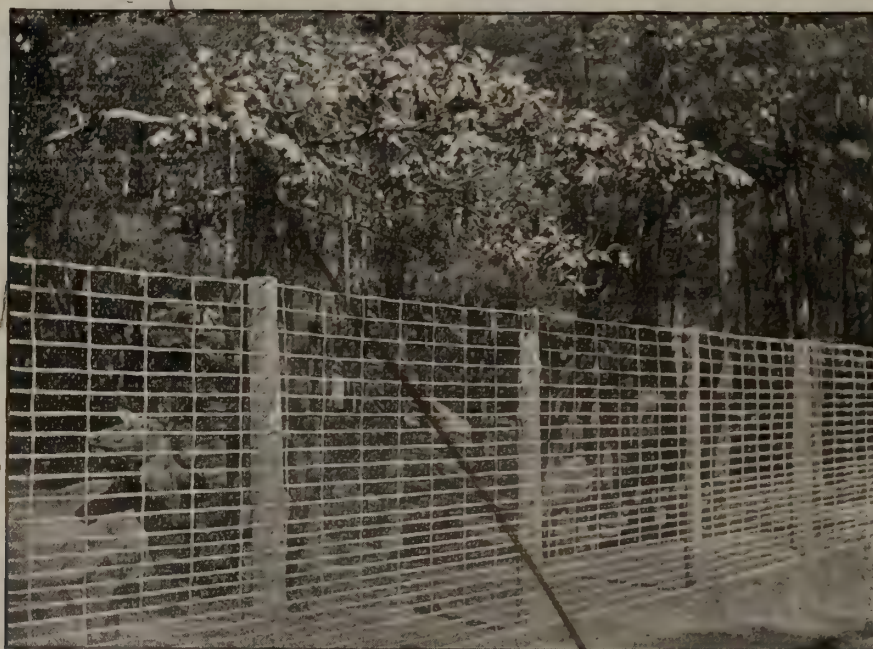
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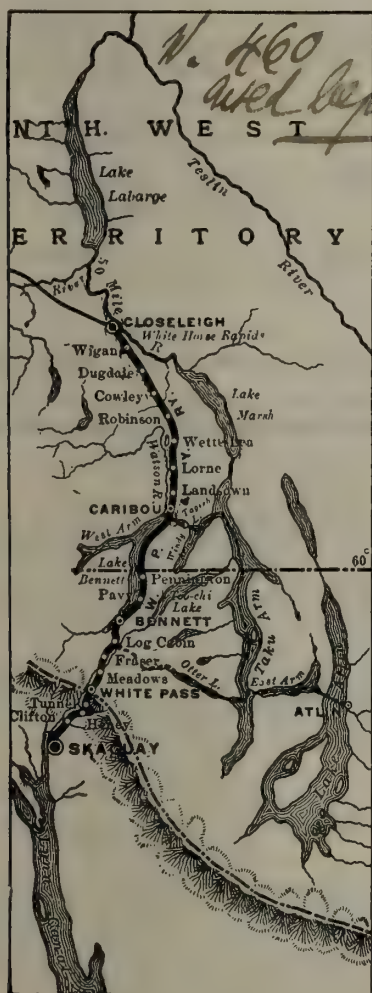
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changed to Whitehorse. The distance from Whitehorse to Ft. Selkirk, at the junction of the Lewes & Pelly Rivers, where the Yukon is formed, is 200 miles, & the distance from Whitehorse to Dawson by river, is 450 miles. The road was completed into Whitehorse, from Caribou, on June 7, the first train entering the town on that date, but owing to the rough country encountered along the shore of Lake Bennett the line between Bennett & Caribou was somewhat delayed. Traffic is being maintained between Bennett & Caribou by steamers. One thousand men were engaged in grading the roadbed & laying track between Bennett & Caribou, & at the date of our last advices it was expected the line would be completed early in Aug. (A later telegram says this has been done.)

The following information regarding the line from Bennett to Whitehorse has been furnished by General Manager E. C. Hawkins:



"The first 12 miles beyond Bennett is very heavy rock work, precipitous mountain peaks running directly into the deep water of the lake. The other 15 miles of the 27 are along ordinary mountainside, & are of more easy or average construction. At the north end of Lake Bennett, at what is known as Caribou Crossing, a bridge about 500 ft. long will be put in, with a draw span, so as not to interfere with the navigation of the lakes & river. From Caribou Crossing to a point on the river below Whitehorse Rapids, at the new town site of Whitehorse, a further distance of 44 miles, the conditions are as follows: The first 13 miles cross a rolling sand-hill country with occasional marshes, being remains of old glacier lakes. Wherever the ground is covered with moss & timber the glacial ice is still encountered in the gravel at a depth of 2 ft. under the moss. Fifteen miles from Caribou

Crossing two high bridges cross the canyon at the lower end of Lewis Lake. This lake was drained by an earth cut & lowered 75 ft. The road then passes along the east shore of Lewis Lake, crossing former islands & peninsulas, & is of quite remarkable location. At the upper end of Lewis Lake we again get out into the Watson River valley by a series of deep gravel cuts. From Lewis Lake on there are several miles of nearly level grade & light work along the valley. The line then passes along the shores of Ruth & Cougar Lakes & approaches the banks of the Lewes River, in the vicinity of Miles' canyon. The road is here in very heavy cuts & fills, passing through a series of knolls & deep depressions left by the former glaciers. Just behind the Whitehorse rapids the road is placed on a bridge under a steep sand bluff for about a quarter of a mile, & then emerges on a broad level bench at Whitehorse, in the vicinity of the enormous copper mines which lie at a distance of about $2\frac{1}{2}$ or 3 miles, in almost a semicircular form. The maximum gradients on the line between Bennett & Caribou are $1\frac{1}{2}\%$, although the line as first established will have a very few sections of 2% grade, to be taken out in the near future. Maximum curvature is 10° ." (June, pg. 176.)

At the last session of the Dominion Parliament the name of the British Yukon Mining, Trading & Transportation Co. was changed to the British Yukon Ry. Co., & it was given power to extend its line from Fort Selkirk to Dawson, thence westerly to the 141st meridian, & to construct lines from the main line at Caribou Crossing to Teslin Lake or River, & to Atlin Lake or Atlin City, & to construct & operate branch lines, not exceeding 50 miles in length.

Quebec & Lake Huron.—The Dominion Parliament at its last session incorporated a company under this name with power to build from Quebec to the mouth of French River, Georgian Bay, following as much as possible a straight line between those two points, crossing the River St. Maurice at or near Grandes Piles, passing near St. Michel des Saints on the River Matawin, crossing the River du Lièvre at or near Rapide de l'Original, the River Gatineau in the vicinity of Rivière Joseph village & the River Ottawa, near Mat-tawa, & running south of Lake Nipissing to Georgian Bay. The capital stock is of \$5,000,000, & bonds may be issued for \$30,000 a mile. The incorporators are: Hon. J. Tessier, Hon. A. Turgeon, Hon. C. A. P. Landry, Hon. C. Langelier, R. Larue, T. Davidson & J. D. Cameron, of Quebec; H. G. Carroll, of Fraserville, J. D. Hawks, J. M. Nicol, S. F. Angus, W. L. Holmes, C. Currie & F. W. Hayes, of Detroit, Mich., & H. F. Shoemaker, of New York. (May, pg. 145.)

Quebec & New Brunswick.—The Dominion Parliament last session incorporated a company under this name with power to build about 130 miles of line from Connor Station, N.B., on the St. Francis branch of the Temiscouata Ry., to the Intercolonial Railway at St. Charles Jct., or to the Quebec Central Ry. at St. Anselme, or to the G.T.R. at Chaudière Jct., Que. The capital stock is \$500,000, & the bonds may be issued for \$20,000 a mile. The incorporators are: Hon. J. Costigan, Ottawa; A. M. Déchène, St. Roch des Aulnaies, Que.; T. Malcolm, Edmundston, N.B.; G. Carroll, Rivière du Loup, Hon. F. G. M. Déchène, Quebec; Hon. A. Turgeon, Lévis; J. U. Gregory, Quebec; G. A. Murchie, Calais, Me.; A. Bernier, Edmundston; T. Clair, St. Francis, & A. Bertrand & T. J. Cochran, Edmundston, N.B. (Jan., pg. 16.)

The Dominion Parliament last session voted \$192,000 towards building 60 miles of railway, 45 miles from St. Charles Jct. on the I.C.R. towards the St. Francis branch of the Temiscouata Ry., & 15 miles from the mouth of the St. Francis River, N.B., westerly towards St. Charles Jct.

St. Francis River Bridge.—The Dominion Parliament last session revoted \$50,000 towards building a railway bridge over the St. Francis River, in lieu of the grant under 62-63 Vic., chap. 7, at St. Francois du Lac, on condition that the bridge be built so as to allow the municipalities to make use thereof, to establish & maintain a suitable railway for the free passage of foot passengers, vehicles & animals, to be approved by the Minister of Railways.

St. Mary's River.—The Dominion Parliament last session incorporated a railway company under this name, with power to build & operate a railway of any gauge from between Lethbridge & Stirling on the Alberta Ry. & Coal Co.'s line to the International Boundary Line, between ranges 24 & 30 west of the 4th meridian. The incorporators are E. T. Galt, C. A. Magrath & P. L. Naismith, Lethbridge; W. M. Ramsay, Montreal; & A. Ferguson, Ottawa. The head office is at Lethbridge, & the capital stock is \$500,000. The Co. may issue bonds or other securities for \$10,000 a mile.

The Dominion Parliament last session voted \$75,000 towards building 30 miles of railway from the A.R. & C. Co.'s Ry. towards Cardston.

Sallsbury & Harvey.—At the Dominion Parliament's last session this Co. was empowered to construct & operate branch lines from Turtle Creek station southerly to Baltimore, from Baltimore siding northeasterly to Moncton, & from Baltimore siding southwesterly to Walter's Oil Works, Hillsborough parish. The Co. was also empowered to acquire & operate the Harvey Branch Line Ry. & the Alma & Harvey Ry. (May, pg. 145.)

South Shore Line.—The Dominion Parliament last session incorporated a railway company under this name, the incorporators being B. F. Pearson, Halifax, N.S.; J. J. Tucker, H. H. McLean, M. B. Edwards, & H. F. Pud-dington, St. John, N.B.; R. Sage, L. P. Morton, E. R. Chapman, & E. C. M. Rand, New York City. The capital is \$1,000,000, & the head office is located at St. John, N.B. The Company is empowered to acquire & operate the railway capital stock, etc., of the Shore Line Ry. Co., also to connect with the Washington County Ry., & to acquire & operate it, & to issue bonds or other securities to the extent of \$15,000 per mile. The bill as introduced in the House of Commons gave power to connect with other railways in New Brunswick, & to bridge the St. Croix River at St. Stephen, N.B., but these clauses were struck out. (June, pg. 176.)

Victoria Mines.—The proprietors of these are said to have decided not to build the proposed branch from the C.P.R.'s Algoma branch to the mines. (Mar., pg. 79; April, pg. 110.)

RAILWAY APPOINTMENTS, Etc.

Canadian Pacific.—The resignation of Land Commissioner L. A. Hamilton, which was tendered some time ago, has been accepted to take effect at the end of Aug. He will be succeeded by F. T. Griffin, heretofore Assistant Land Commissioner, who will have his headquarters at Winnipeg. It is understood that J. L. Doupe, who has been the chief surveyor of the Land Department for a number of years, will be appointed Assistant Land Commissioner.

R. J. E. Scott, hitherto Chief Inspector of Time Service for lines east of Fort William, with office at Montreal, has been appointed Chief Inspector of Time Service for lines west of Fort William. He will have general supervision of the Co.'s clocks, including the Dey time register clocks, & of the standard watches to be carried by employees, & his instructions in connection therewith must be observed.

D. R. Dingwall, jeweller, of Winnipeg, has been appointed Assistant Chief Inspector of Time Service for western lines. He will discharge such duties as may be necessary from time to time through the absence of the Chief Inspector on eastern lines.

J. H. Thompson has been appointed freight & passenger agent at Baltimore, Md., vice C. G. Osburn.

On the western division S. A. McFetridge, heretofore roadmaster of the Pembina branch & located at Napinka, has been appointed Roadmaster of the Northwestern section with headquarters at Minnedosa, vice R. Watters, deceased. R. M. Binney, heretofore Roadmaster of the Souris, Pipestone & North Central sections, has been given charge of the Pembina section. S. Clarke, who has been section foreman at Chater for 18 years, succeeds Mr. Binney as Roadmaster of the Souris, Pembina & North Central sections.

In addition to the officials of the Manitoba & Northwestern who were mentioned in our last issue as having been given positions on the C.P.R., A. McDonald, heretofore Assistant General Passenger & Freight Agent of the M. & N.W.R., has been appointed Chief Clerk to the Assistant General Freight Agent of the C.P.R. at Winnipeg. A. E. Cox, heretofore Storekeeper of the M. & N.W.R. at Portage la Prairie, becomes Storekeeper of the C.P.R. at Calgary. A. D. McKay, Treasurer, & E. J. Bulgin have not yet completed their services with the M. & N.W.R.

Esquimalt & Nanaimo.—Jos. Hunter, M.L.A., formerly General Superintendent & Chief Engineer, has been re-appointed to that position. H. K. Prior, who was General Freight & Passenger Agent & who succeeded Mr. Hunter as General Superintendent, has been appointed Purchasing Agent.

Grand Trunk.—It is not the intention to appoint a successor to P. H. Loftus, Foreman of Construction on the Chicago & G.T., who recently resigned to enter service on the Fritchton line. The work is being attended to by R. P. Dalton in addition to his duties as trainmaster.

E. J. Lye, who has been bridge foreman on the G.T.R. at Stratford for a number of years, has been appointed Inspector of the Bridges & Building Department, with headquarters at London, vice R. Kirkpatrick, resigned. His duties extend from Niagara Falls to Sarnia tunnel, & between Toronto & Hamilton, Port Dover & Hamilton, Port Dover & Tavistock, Harrisburg & Tilsonburg, & London & Wingham.

Great Northern (U.S.A.)—H. E. Tudor has been appointed District Freight & Passenger Agent at Montreal, vice W. G. McLean, resigned.

J. A. Sargent has been appointed Assistant General Freight Agent at St. Paul, vice W. H. Hill, appointed superintendent of the Dakota division.

Kootenay Ry. & Navigation Co.—F. S. Forest has been appointed Superintendent of this Co.'s line between Bonner's Ferry, Idaho, & Kuskonook, B.C., with headquarters at Spokane, Wash. He has full charge of operation & maintenance. Mr. Forest is also Superintendent of the Spokane & Northern, a subsidiary line of the Great Northern (U.S.A.)

Michigan Central.—C. R. Emery has been appointed Superintendent of Dining Cars & Dining Halls, with headquarters at Detroit, vice W. H. Lindley, deceased.

Minneapolis, St. Paul & Sault Ste. Marie Ry.—J. H. Thompson has been appointed Freight & Passenger Agent at Baltimore,

Md., vice C. G. Osburn. H. N. Paist has been appointed Paymaster at Minneapolis, Minn, vice W. C. Stone, resigned to accept service elsewhere.

Minnesota Transfer.—E. Pennington, General Manager of the Minneapolis, St. Paul & Sault Ste. Marie, has been elected President of the M. T.

Rutland.—J. M. Ferris has been appointed Travelling Canadian Freight Agent, with headquarters at Sorel, Que. He was with the Central Vermont for 26 years, being 20 years agent at Des Riviers, & then Travelling Freight Agent.

Sydney & Louisburg.—The following is a revised list of officials up to date: Superintendent, A. N. McLennan; Master Mechanic, J. Muggah; Engineer, — O'Dell; Trainmaster, Ross Thompson; Roadmaster, W. D. Graham. Their headquarters are all at Glace Bay, N.S.

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THE CANADIAN PACIFIC RAILWAY CO.

DIVIDENDS for the half-year ended thirtieth June, 1900, have been declared as follows:

On the Preference Stock two per cent.

On the Common Stock two and one half per cent.

Warrants for the Common Stock dividend will be mailed on or about first October to Shareholders of record at the closing of the books in New York and London respectively.

The Preference Stock dividend will be paid on Monday, October first, to Shareholders of record at the closing of the books at the Company's London Office, 1 Queen Victoria Street, London, E.C.

The Common Stock transfer books will close in London at 3 p.m. on Friday, 24th August, and in Montreal and New York on Friday, 7th September. The Preference Stock books will close at 3 p.m. on Friday, 31st August.

All books will be re-opened on Tuesday, and October.

By Order of the Board,

CHARLES DRINKWATER,

Montreal, 13th August, 1900.

Secretary.

NEW BOOKLETS.

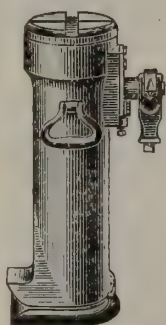
The Chicago, Milwaukee & St. Paul Railway is issuing a series of booklets regarding points of interest along its lines, and if you are interested in the western country, or contemplating a trip, write GEO. H. HEAFORD, General Passenger Agent, Chicago, Ill., for the special publication desired, enclosing four cents in stamps for postage for each one.

- No. 1. The Pioneer Limited.
- No. 2. The Land of Bread and Butter.
- No. 3. The Fox Lake Country.
- No. 4. Fishing in the Great North Woods.
- No. 5. The Lake Superior Country.
- No. 6. Cape Nome Gold Diggings.
- No. 8. Summer Days in the Lake Country.
- No. 9. Summer Homes, 1900.
- No. 11. The Game of Skat.
- No. 12. Milwaukee—The Convention City.
- No. 13. A Farm in the Timber Country.
- No. 14. Stock Raising in the Sunshine State.
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Norton's Ball Bearing Jacks.

Standard Wherever Jacks are Used.

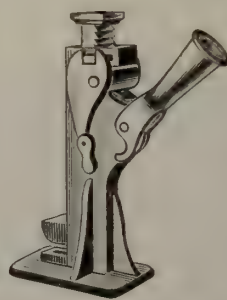
50 STYLES. 8 TO 70 TONS CAPACITY.



40 Ton Jack.



10 Ton Automatic Lowering Jack.



15 Ton Track Jack.



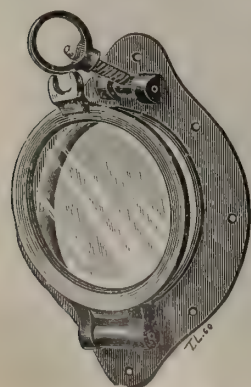
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**STOVEL'S
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DIRECTORY.**

Mainly About People.

M. A. Kerr, of the Hamilton Steamboat Co., is visiting Europe.

President Hill, of the Great Northern Ry., U.S.A., has returned from Europe.

C. R. Hosmer, of the C.P.R. directorate, returned to Montreal from Europe early in July.

W. Mackenzie, of Mackenzie, Mann & Co., returned to Canada from England early in Aug.

I. G. Ogden, Comptroller of the C.P.R., has been enjoying a fishing excursion at Rideau Lake.

Major J. A. Carlaw, ex-cashier of the G.T.R., was married at Toronto, July 18, to Mrs. L. M. French.

Lady and the Misses Van Horne are at their summer residence, Ministers' Island, St. Andrews, N.B.

W. Whyte, Manager of the C.P.R. Western lines, has returned to Winnipeg from his trip to China & Japan.

W. Macmillan, Assistant General Freight Agent of the Michigan Central, died suddenly in Portland, Ore., June 20.

Sir Rivers-Wilson, President of the G.T.R., has been elected on the Executive Committee of the British Empire League.

C. F. Sise, President of the Bell Telephone Co., is staying at the Algonquin, St. Andrews, N.B., accompanied by Mrs. and Miss Sise.

Lady Strathcona left London July 17 to take the waters at Carlsbad. Lord Strathcona is spending his August holiday at Glencoe, Scotland.

Travelling Passenger Agent McKenna, of the C.P.R., who was seriously injured by the collapse of a bridge at Grand Falls, N.B., is recovering.

P. G. Close, who died in Toronto July 26, aged 62, was formerly a director of the Toronto, Grey and Bruce Ry., & of the Erie & Huron Ry.

A. C. Wurtele, Secretary-Treasurer of the Atlantic & Lake Superior Ry., died in Montreal, July 16, suddenly, of heart disease. He was 63 years old.

James Cooper, the well-known railway supply dealer of Montreal, is spending the summer at his seaside residence at Carleton, N.B., with Mrs. Cooper.

Mrs. D. B. Hanna, wife of the General Superintendent of the Canadian Northern, & her family recently spent some weeks at the Lake of the Woods.

Miss R. R. Seely, daughter of A. Seely, Treasurer of the New Brunswick Ry., was married in St. John, N.B., July 24, to F. M. Wortman of that city.

Miss Christina M. Hendrie, daughter of W. Hendrie, G.T.R. cartage contractor, was married in Hamilton, July 30, to H. Eckford of High River, Alberta.

Lord and Lady Mountstephen proceed from England to Bombay in October to visit Lord & Lady Northcote. They will tour through India & return to England via Canada.

L. A. Hamilton, who has resigned the Land Commissionership of the C.P.R., will in future reside in Toronto. A portrait & short biographical sketch of him appeared in our March issue.

Sir Wm. Van Horne has, according to a press report, secured from R. G. Reid a site for a shooting lodge on the West Coast of Newfoundland, where he will build a residence & spend a part of each summer.

F. E. Kirby, for a number of years Chief Engineer & Designer for the Detroit Dry Dock Co., & lately connected with the American Ship Building Co., resigned July 1. It

is said he will locate in New York as a civil engineer.

Geo. A. Keefer has been appointed Resident Engineer of the Dominion Public Works Department in B. C., in place of J. R. Roy, recently appointed Secretary of the Department. Mr. Keefer was in 1884 Inspector of Bridges for the C.P.R.

M. Neilson, C.E., Manager of the St. John, N.B., Railway, who has been for some months superintending electric railway construction work in Jamaica, was recently recalled to Canada by the illness & death of his mother, who lived near Almonte, Ont.

F. T. Griffin, who will on Sept. 1 succeed L. A. Hamilton as Land Commissioner of the C.P.R., was born in 1854. He has been in the service of the Land Department for 17 years & has occupied the position of Assistant Land Commissioner for the past 9 years.

J. M. Ferris, of Des Rivieres, Que., who recently resigned his position with the Central Vermont Ry. after 26 years' service, & removed to Phillipsburg to take up his residence there, was presented prior to his removal with an address & set of silver by his friends in Des Rivieres.

It is not probable that Sir Rivers-Wilson, President of the G.T.R., will visit Canada this year, as he is a Commissioner to the Paris Exposition. General Manager Hays recently stated that the condition of the road is so satisfactory that he believes his recent visit to England has obviated the necessity of the President or any of the directors coming out this year.

T. J. Kennedy, who recently resigned the position of Superintendent of the North Bay Division of the C.P. Ry., to become General Superintendent of the Algoma Central, has had a varied & successful railway experience. He began as an engineer in charge of section 15 of the C.P.R., near the Lake of the Woods. He then took charge of Manning, McDonald & Co.'s contract on the north shore of Lake Superior.

P. Giffins, recently appointed General Manager of the Dominion Atlantic Ry. at Kentville, N.S., was born at Harpenden, Eng., Dec. 25, 1850. He entered railway service in 1871 with the Windsor & Annapolis, now the Dominion Atlantic. He served as Auditor & Paymaster until 1872 & for the three years following was Stationmaster at Annapolis & Halifax. From 1875 to 1889 he was Auditor of the D.A., & until 1893 Auditor & General Passenger Agent. Then until 1896 he was General Passenger Agent, & from Jan. to Aug., 1897, Traffic Superintendent, & until his recent advancement, General Superintendent.

C. Murphy, recently appointed Superintendent of the Chapeau Division of the C.P.R., was born in Prescott, Ont., Nov. 20, 1865. He entered the service of the old Montreal Telegraph Co. as a messenger in May, 1879. Four years later, in July, he entered the service of the C.P.R. as night operator at Hull. He has remained with the Co. ever since, serving as chief operator at Ottawa from Feb., 1885; as Despatcher from August, 1885; as Chief Train Despatcher from May, 1890; as Acting Superintendent of the Chapeau Division from August, 1899, & as Superintendent of that division since June 11, 1900.

It is gratifying to note that Canadian watering-places are much more patronized by well-known Canadian people than in days gone by, when the better known U.S. seaside resorts were crowded with Canadians. St. Andrew's, N.B., has a most comfortable hotel, as well as many charming residences. Mr. Shaughnessy, President of the C.P.R., who bought Sir John Macdonald's summer house, Les Rochers, at St. Patrick's, on the lower St. Lawrence, has this year rented his house & gone to St. Andrew's, where Sir Wm. Van Horne has his beautiful house, & his

farm with its famous herd of cattle imported from Holland.—Toronto Globe.

The understanding which exists between England & Japan has perhaps more to do with Canada than most people are aware of. The C.P.R. route, which has been so greatly patronized by Japanese merchants & the better class of that flowery land, who were wending their way to the English universities, has so promoted personal intercourse that there is already a considerable bond of interest between the two countries. Sir Wm. Van Horne is a most earnest student of the Japanese language, & his collection of Japanese curios is perhaps the finest private collection in the world, & while he has the mania for collecting the purely artistic article, he has mastered the "lore" & sentiment of the artist, which gives him a keen insight into the thought of the nation he so much admires. —Toronto Globe.

R. J. E. Chapple, recently appointed Acting Superintendent of the C.P.R. at Schreiber, Ont., was born in Plymouth, England, March 15, 1862. His first railroad service was in the office of the Division Engineer of the Cromwell line of the Great Western of England in 1876. In July, five years later, he was appointed a clerk in the accountant's office of the G.T.R., & a month later was transferred to the fuel agent's office. He entered the service of the C.P.R. Mar. 26, 1882, & has served since that time as stenographer to the Assistant General Superintendent from 1883; as Chief Clerk to the Vice-President from 1892; as General Superintendent's assistant on the Eastern Division from April, 1894, & Division Superintendent at Schreiber (his present position) from June 18, 1900.

Capt. John Donnelly, sr., died at Kingston, Ont. July 13, after a severe illness. He was one of the cleverest "wreckers" on the lakes. He raised the propeller Brooks, sunk in 84 feet of water, three miles from the Ducks, on Lake Ontario. All the crew of this property were lost at the time of the accident. He raised the propeller Magnet & cargo, from where she was sunk by collision in 109 feet of water, abreast of Howe Island. He has taken nearly all of the boats of the western division of the Richelieu Line out of critical positions, & his work has not been confined to inland vessels alone, as he raised the steamer Vicksburg, of the Dominion Line, sunk below Isle Verte, in the Gulf of St. Lawrence, & the steamship France, of the National Line, sunk in the river below Montreal. He was president of the Donnelly Wrecking & Salvage Co.

L. E. Westbrook, ticket agent in the New York office of the G.T.R., disappeared June 9. Mr. Westbrook, who is 35 years old, entered the service of the Co. as a boy, acting as ticket agent at Niagara Falls & Buffalo before his promotion to the New York office. Manager Dwyer vouches for the statement that his accounts are correct. When Mrs. Westbrook entered the dining-room at the breakfast hour she found a note addressed to her. It said: "I am going away—perhaps for short & perhaps for long—but will be back some day. My love is with you. Be good to the little ones." On Aug. 9 he appeared at the home of his aunt, Mrs. Jennie Dorr, in Port Jervis, N.Y. He was apparently dazed & unable for a time to talk coherently. The previous four weeks, he said, had been a blank to him, & he knew absolutely nothing of what had occurred.

A. J. Gorrie, recently appointed Superintendent of the Port Arthur, Duluth & Western Ry. at Port Arthur, was born at Raith, Kirkcaldy, Scotland, Dec. 10, 1868. After being educated in the public schools, he began railway work in the General Goods Manager's office of the Caledonian Ry. at Glasgow in May, 1883, & served with various departments & at several stations of that company. Coming to Canada in May, 1892, he was employed as clerk in the Superintendent's office

of the C.P.R. at Fort William, Ont., until Aug., 1894, when he was promoted to Chief Clerk & Accountant. He held that position until Oct., 1899, when he entered service with the Canadian Northern, in charge of the operating department at Winnipeg under the General Superintendent. He continued in that position until his recent appointment to the P.A., D. & W. which will form part of the Canadian Northern system.

Thos. Marks, of Port Arthur, who died in Toronto General Hospital July 9 after suffering from a malignant tumor & Bright's disease, was born in Glenashene, Ireland, in 1834. He came to Canada in 1839, & with the family settled in the county of Carleton, near Ottawa. He spent some years sailing on the lakes, and in 1850 settled on St. Joseph's Island as a farmer. In 1857 he started a general store at Bruce Mines, on the north shore. The business grew, & was extended to Port Arthur in 1869 & Sault Ste. Marie in 1871. This was continued in various parts of Algoma until 1897. He entered Port Arthur when nothing but the Government buildings existed, & besides erecting his own structures built the prominent business & private establishments in that town. His first railway enterprise was a line of seven miles from Prince Arthur's Landing (now Port Arthur) to West Fort William, which was afterwards acquired for the C.P.R. He next promoted & saw built the Port Arthur, Duluth & Western Ry., running to the Minnesota boundary from Thunder Bay, which is

now part of the Canadian Northern System. In 1877 he successfully tendered for the construction of section A of the C.P.R., at a cost of about \$2,500,000. During the construction period he did an enormous supply business on the north shore, besides maintaining a fleet of three steamers. Subsequently he brought to Canada the big steamer Algonquin. He was a type of the shrewd, pushing pioneer, whose efforts did much for the good of the country. Before the C.P.R. was built he was known to often cross on foot the ice of Georgian Bay in the winter from Bruce Mines to Penetanguishene & on the ice of Lake Superior from Port Arthur to Duluth in connection with his business duties. He is survived by his widow, who was Miss Buchanan, & by one daughter.

The Intercolonial Ry. has placed an order with the Richmond Locomotive & Machine Works for 10 consolidation locomotives with 56" drivers; weight in working order 164,000 lbs., with 147,000 lbs. on drivers. The boilers are to be of the straight top type 66" diameter at the smoke box end, & will carry 200 lbs. steam pressure. Five of these engines will be compounds with 22½" & 35" x 30" cylinders.

A train of freight cars ran off the Wellington St. siding of the G.T.R. at Montreal, July 31, & crashed into a house. The house was wrecked, & the inmates had a very narrow escape. Several of the cars were smashed & the contents strewn over the streets.

The New Era on the G.T.R.

One of the marks of the industrial progress of Canada in recent years has been a very general improvement in the roadbed, bridges, stations, rolling stock & general equipment of the G.T.R. It may be well before entering upon any of the details of this work to mention one result. The International Limited train, which formerly occupied 12 hours in the run from Montreal to Toronto, 333 miles, now travels from Montreal to Detroit, 557 miles, in the same time. Between Montreal & Toronto a large amount of double-tracking has been done. At Trenton there have been heavy grade reductions, the roadway embankment has been raised about 21 ft. at the highest point, & a double-track bridge is being constructed across the Trent River. Between Vaudreuil & Ste. Anne's, also some heavy grades have been eliminated by the raising of the roadway embankment. Contractors are now at work double-tracking the section between Hamilton & Niagara Falls. The reorganization of the Chicago & G.T.R. embraces the double-tracking of the 335 miles from Port Huron to Chicago, including heavy grade reductions, & much of the work has already been done. Double-tracking & reduction of heavy grades of course conduce to speed as well as to safety, & a similar remark may be made in regard to the ballasting of many miles of track, & the substitution of 30 lbs. rails for lighter material. Large expenditures have



Richmond Locomotive and Machine Works,

RICHMOND, VIRGINIA, U.S.A.

BUILDERS OF

Simple and Compound

LOCOMOTIVES

Adapted to every variety of service.

MANITOBA

The Government Crop Bulletin issued Dec. 12th, 1899, gives the following statistics for the year:

CROPS.

ACRES.	AVERAGE YIELD.	TOTAL.
Wheat....1,629,995	17.13 bus.	27,922,230 bus.
Oats.....575,136	38.80 "	22,318,378 "
Barley....182,912	29.4 "	5,379,156 "
Potatoes..19,151	168.5 "	3,226,395 "

STOCK.

Beef Cattle exported during the year	12,000
Stockers exported.....	35,000
Total value dairy products.....	\$470,559 09

10,500 FARM LABORERS

Came from Eastern Canada to assist in the harvest fields of Manitoba in 1899—and the demand was not fully satisfied.

MANITOBA FARMERS ARE PROSPEROUS.

Farmers erected, last year, farm buildings valued at one and one-half million dollars.

MANITOBA LANDS—For sale by the Provincial Government. Over 1,600,000 acres of choice land in all parts of the Province are now offered at from \$2.00 to \$5.00 per acre. Payments extend over eight years. **Special Attention** is directed to 500,000 acres along the line of the Manitoba and Northwestern Railway at \$3.00 and \$3.50 per acre.

FREE HOMESTEADS are still available in many parts of the Province.

For full information, maps, etc., **FREE**, address J. A. DAVIDSON, Minister of Agriculture and Immigration, Winnipeg, Manitoba. Or C. H. JEFFERYS, Manitoba Emigration Agt., Union Station, Toronto, Ont.

THE FAVORITE ROUTE

To New York and
.....Philadelphia

GRAND TRUNK RAILWAY

in connection with the

LEHIGH VALLEY RAILROAD

Route of the "Black Diamond Express," handsomest train in the world.

Leaving Toronto daily (except Sunday) at 9 a.m., Hamilton 9.55 a.m., arrive New York 10.08 p.m.

Fast Night New York and Philadelphia Express, leaving Toronto 6 p.m. daily, arrive New York 9.13 a.m., Philadelphia 8.56 a.m.

Pullman Sleepers from Toronto, Hamilton and London to New York and Buffalo to Philadelphia.

Call on Grand Trunk Ticket Agents for tickets and further information, or address

Robt. S. Lewis

Canadian Passg'r Agent, 33 Yonge Street
Toronto.

Chas. S. Lee

Gen'l Passg'r Agt.
New York.

A. A. Heard

West'n Passg'r Agt.
[Buffalo, N.Y.]

All C.P.R. Agents in

MANITOBA,
ASSINIBOIA,
ALBERTA and
BRITISH COLUMBIA

sell through tickets to the Old Country, cheaper than if passengers bought railway tickets to New York or Montreal, and then re-booked.

They also sell prepaid tickets to passengers coming from the old country, cheaper than the rate obtainable in Europe, and on favorable terms.

Apply to any agent Port Arthur and west, or to

W. P. F. CUMMINGS,

C.P.R. Offices,
WINNIPEG.

been made for new rolling stock, powerful modern locomotives have been built, freight cars of 30 tons capacity have replaced the old 12 & 15 ton cars, & the passenger service has been improved by new coaches, parlor cars, 2 new dining cars of the latest design, & 4 cafe parlor cars, introduced for the first time into Canada.

The Niagara steel arch bridge was completed & formerly opened for traffic in Sept., 1897. The arch, which is the longest in existence, is 550 ft. in length, & the bridge, including approaches, has a total length of 1,100 ft. It replaced the old original suspension bridge, which was built in 1855. The new bridge is double-tracked & designed to carry on each track a load of 2 locomotives with 4 pairs of drivers each, & carrying 40,000 lbs. on each pair, followed by trains weighing 3,500 lbs. per running foot, also a load of 3,000 lbs. per foot on the lower roadway, over six times the capacity of the old suspension bridge.

The Victoria Jubilee bridge, replacing the old tubular bridge which was completed & opened for traffic by the Prince of Wales in 1860, is composed of 24 spans, averaging 245 ft. each, making a total length of about 1½ miles. It is a double-track structure with driveways & footwalks on each side. This bridge was constructed in 8 months' actual working time, as there were some delays due to severe weather. Railway traffic over the bridge was conducted as usual & without interruption during its reconstruction, & the total delay to trains during the entire period of 8 months was equal to but 22 hours, the longest single delay being about 2 hours. The old bridge weighed 9,044 tons, while the new structure weighs over 22,000. The width of the old bridge was 16 ft. The new one is 66 ft. 8 in. wide. The height of the old bridge was 18 ft.; the new, over all, is from 40 to 60 ft. high. It is designed to carry a total load of 11,000 lbs. per lineal foot, while the old bridge would carry but 2,500. The cost of reconstruction of the new bridge was about \$2,000,000. The new bridge with its additional capacity of double track & roadways on each side was conceived by Mr. Hays & was considered by him necessary to properly develop the possibilities of the railway & meet the demands of increasing traffic.

The international bridge connecting Fort Erie, Ont., with Buffalo, N.Y., is really two structures: one across the Niagara River proper, 1,967 ft. long; the other across Black Rock Harbor, 517 ft. long, with a draw bridge 214 ft. long. This bridge is being reconstructed, & it is expected will be completed with the close of the year. It will cost in the neighborhood of \$300,000. The new bridge is designed to carry the heaviest weight required by the use of modern rolling stock & loads, being considerably more than double the capacity of the old bridge. Many improvements have been made in smaller bridges all over the system, aggregating a total expenditure of upwards of \$750,000, comprising the entire renewal of every bridge on the line from Montreal to Portland, including the bridges across the Ottawa River at Ste. Anne's & Vaudreuil, across the Riviere Rouge west of Port Union, & on lines west of Toronto, across the Grand River at Paris, across the Thames at London, & across Sixteen Mile Creek east of Hamilton—all of these latter being double track structures.

In order to accomplish the present passenger and freight service it has been found necessary to rearrange & improve the yards & buildings at many important points, such as York, Sarnia, Port Huron, Niagara Falls, Fort Erie & others. At Sarnia & Port Huron there have been constructed entirely new engine houses of 30 stalls capacity, comprising modern coal chutes, sand houses, &c. Much has been done in the way of rearranging

switching yards, coaling & water facilities at Toronto, Belleville, Montreal, London, Hamilton, Island Pond, Portland & all the larger terminals.

A marked improvement has been made in replacing old wooden station buildings with handsome new brick & stone or frame structures, arranged to meet the increasing requirements of growing towns. Among these may be mentioned the new buildings at Berlin, Guelph, Galt, Merriton, Vaudreuil, Ste. Anne's, Lachine, St. Henri, St. Lambert, St. Hyacinthe, Arthabaska, etc. A new general office building is under construction in the heart of Montreal, on a valuable piece of land donated by the city for that purpose. It will be a handsome building, 5 stories high, of Quebec gray granite up to the first floor, & then of Indiana gray lime stone. It will occupy an entire city block, 200 x 135 ft., will provide double the present office space, & will be one of the finest buildings in America devoted to the exclusive office purposes of one railway company. The expenditure will be \$500,000. There have also been erected at the Co.'s works, Point St. Charles, Montreal, handsome offices for the use of the motive power department. Arrangements have been made with syndicates under which elevators have been constructed at Midland & Goderich, & one is now under construction at Meaford, for the handling of large quantities of grain, & at the latter point is involved the deviation of the railway from its present location to a position on the harbor in the town.

In connection with the administration of the railway one of the most important changes that has been made under Mr. Hays' management has been the introduction of the standard rules approved & adopted by the American Railway Association for the running of trains. These rules, relating to signals, etc., are in use upon the greater part of the 190,000 miles of railways in the U.S., & the importance of uniformity will be at once apparent. In order to provide for the safety of its employes the Co. has spent \$1,100,000 in equipping cars & engines with automatic air brakes & couplers. An idea of the magnitude of the concern will be gathered from the statement that the Co. employs about 24,000 people, & pays out annually in salaries & wages from \$10,500,000 to \$11,000,000. Although Mr. Hays is a strict disciplinarian, insisting upon close attention to business & total abstinence while on duty, yet his uniform courtesy wins him the respect & hearty co-operation of officers & employes.

The result of the policy which we have outlined has been a vast improvement in the securities of the Co. & its credit. The stock securities have an enhanced value of \$80,000,000 as compared with the market prices of 1895 & the early part of 1896. This improvement is due to the increased payment of dividends to the English holders, amounting to \$3,762,434 for the four years from Jan. 1, 1896, to Dec. 31, 1899. A deficiency in interest on perpetual debenture stock which existed on Dec. 31, 1895, has been earned & paid by the Co. since that date. The total amount thus represented is \$4,856,009. This is only \$2,814,025 less than the net dividends earned in the 10 years preceding the time when Mr. Hays took charge of the road.

Among the financial successes of the present management has been the incorporation in the G.T. system of the Central Vermont Ry. This road is the chief artery of commerce of the State of Vermont, with an important line extending through Massachusetts & Connecticut to Long Island Sound, having a total length of 570 miles, & affording an outlet for the system direct to New York & Boston. Under the recent reorganization of the C.V. Co. the G.T.R. was awarded more than two-thirds of the stock, as well as a large proportion of the \$12,000,000 of bonds issued, in settlement of its claims against that

property. The leasing of a portion of the G.T.R. system to the C.P.R. between Toronto & Hamilton, to the Wabash R.R. between St. Clair & Niagara Rivers, & to the I.C.R. east of Montreal were good strokes of policy & in the best interests of Canada, affording the same competition as would have been brought about by unnecessary duplication of lines.

There was a time, as most of our readers will remember, when the service of the G.T.R. was uniformly bad, when the delays in the running of trains were subjects for angry derision, & when the curses of shareholders were heard by every Canadian who visited England. For the change which has taken place the present General Manager is entitled to a very large share of credit, & there is good reason for congratulating not only those who are financially interested in the road, but the travelling & shipping public & the country at large, for the national credit abroad has certainly been improved by the betterment in the position of so large & important a concern.—Toronto Globe.

Among the Express Companies.

In accordance with an agreement arrived at by all the companies interested the entire city of Chicago, within its corporate limits, is to be considered as a common point, open to all companies under the existing rules pertaining to common points.

The Dominion Express Co. has warned its agents of two recent successful attempts at defrauding merchants in towns adjoining Toronto. The scheme is to buy goods & have them shipped to a certain point C.O.D., & then go to that point & steal them.

Some time ago a box containing \$500 worth of gold dust was stolen from the Dominion Ex. Co.'s office at Spence's Bridge, B.C. Inspector McKenzie, of the C.P.R. detective department, was given charge of the case, & he arrested three Indians on suspicion, they having some gold in their possession. They denied all knowledge of the crime. During the trial before the Police Magistrate which followed, station agent Webber at Spence's Bridge confessed that he had taken the dust, & could place the Co. in possession of it. He was committed for trial at the fall assizes at Kamloops.

The Dominion Ex. Co. put a new tariff in force July 25th, under which the rates between Toronto & Montreal & points as far west as Moosejaw have been reduced 25 & 50c. per cwt. The rate only applies as far east, however, as Sudbury. Formerly the charge from Montreal was 25c. higher than Toronto, but it has now been made the same. A special rate has also been put in force to Crow's Nest points west of McLeod, to Kootenay Landing, B.C., the reduction ranging from 75c. to \$1.75 per cwt., according to distance. The rate to Creston from Toronto, formerly \$12.25, is now \$11.25; from Toronto to Fernie, formerly \$12.25, is now \$10.50. The reduction to Crow's Nest points will doubtless mean an increase in business.

The Dominion Ex. Co.'s last general circular contains the following:—"The Supreme Judicial Court of Massachusetts rendered a decision upholding the Fifty Dollar Clause, which has sufficient bearing on the receipts issued by this Co. to be of interest to all employes of the Co., the particulars of which are therefore given herewith: A box was delivered to a driver for the Adams Ex. Co. in Boston. A card tacked to the box gave the address in New York to which the shipper wished it sent. There were no marks to indicate the value or contents of the shipment. The driver gave a receipt to the shipper's clerk in which no value was stated, but which was stamped, 'Value asked & not given.' The shipment was sent 'Collect.' The box was never de-

x \$15,400,000 mentioned by Vice President
Feb 29 1899

livered to the consignee. The shipper brought suit to recover the value of the shipment, which contained paintings worth \$3,000. It was proved that the shipper knew that extra charges were made on shipments valued at more than \$50, & that he was familiar with the clause in the receipt limiting the liability of the Co. in case no value was declared. The Court decided that the shipper could not recover more than \$50. The decision shows, among other things, the great importance of making the shippers acquainted with the terms of the receipt. These remarks will apply with equal force to the notation of Owner's Risk. In many cases this consideration may be controlling. Receiving clerks, drivers, & all others issuing this Co.'s receipts are requested to see that shippers are fully cognizant of any notations on the receipt limiting the Co.'s liability where value is not declared, or where shipments are accepted at owner's risk."

General Telegraph Matters.

A wireless telegraph service has been opened between the German island of Borkum & the Borkum Reef lightship, in the North Sea. Ships are reported by this means between 6 a.m. & 8 p.m.

The Commercial Cable Co.'s new cable to the Azores Islands is laid & in operation. It connects at the Island of Fayal with the Europe & Azores Co.'s cables from the Azores to Portugal, & completes the Commercial's fourth route across the Atlantic. It is the first cable to connect the Azores direct with Am-

erica. It also opens direct communication for the first time between the U.S. & Portugal. The Europe & Azores Co.'s cable makes connection at Lisbon with the Portuguese land lines, the Eastern Telegraph Co.'s cables to Spain, the Mediterranean ports, all Africa, India, China, Japan, Australasia & the Philippines, & with the Western Telegraph Co.'s cables to Brazil, Argentina & other ports of South America.

A new plan has been suggested by D. Tommasi for restricting the interception of wireless telegraphy messages. The idea is to use two transmitters of different ranges of action. The transmitter with the larger range is used for sending the message to the station for which it is intended, while the transmitter with the shorter range is employed in confusing the message within that range by an unmeaning series of dots & dashes. The range of a transmitter can fortunately be adjusted by altering the size of the spark gap, & it should not be difficult to restrict the chances of interception to a zone of, say, half a mile. If, in addition, the spherical wave train could, by reflection or otherwise, be converted into a beam of the form of a searchlight, the problem would be solved in a way.

A new system of multiplex telegraphy has been devised by M. E. Mercadier, who has recently described the apparatus before the Société de Physique, of Paris. The transmitter is an electro-diapasm; the receiver is a telephone, & the relay is a differential telephone, which serves at the same time to receive all the signals sent by wave currents of different wave-lengths, & to distribute them

to the receiver circuits, containing twelve telephones constructed according to his system. The effect of the signals transmitted upon the receivers at the same end is neutralized by a combination of condensers & an artificial line. M. Mercadier gives an account of the practical results obtained by this system, which include the transmission of twenty-four messages at once over the same circuit from Paris to Bordeaux.

Two engineers, of Berlin, have recently invented an apparatus which transmits to a distance the relief of a figure, either living or inanimate; the apparatus has received the name of "teleplastic." The relief may be received in full size, or may be enlarged or diminished at will, being quite exact. The transmitter consists of a frame containing a great number of metal rods placed side by side, & movable back & forth. The receiver is a similar apparatus, in which the rods are moved by a series of electromagnets; when a relief is pressed against the rods of the transmitter a series of contacts is established which causes the receiver to reproduce the relief by means of its rods, whose movement corresponds exactly to that of the transmitter. It is expected that this apparatus will render service especially in the pursuit of criminals, as it will give an exact reproduction of his features.

Tenders for the manufacture and laying in the Pacific Ocean of 8,272 nautical miles of telegraph cable between Vancouver & Fanning Island, Fanning Island & Fiji, Fiji & Norfolk Island, Norfolk Island & New Zealand, Norfolk Island & Queensland, are in-

WIRE ROPES, MARION STEAM SHOVELS, BALLAST UNLOADERS.

Columbus Pressed Bowl Wheel and Drag Scrapers.

.....Wheelbarrows, Picks, Shovels, Mattocks, Etc.

Contractors Rails and Dumping Cars.

Saddle Tank Locomotives.

JAMES COOPER, 299 ST. JAMES ST., MONTREAL.



Established 1831.

Annual Capacity, 1,000'

BALDWIN LOCOMOTIVE WORKS.

SINGLE EXPANSION AND COMPOUND LOCOMOTIVES.



Built for the Great Northern Railway.

Broad and Narrow Gauge Locomotives; Mine and Furnace Locomotives; Compressed Air Locomotives; Steam Cars and Tramway Locomotives; Plantation Locomotives; Oil Burning Locomotives.

adapted to every variety of service, and built accurately to gauges and templates after standard designs or to railroad companies' drawings. Like parts of different engines of same class perfectly interchangeable.

Electric Locomotives and Electric Car Trucks with Westinghouse Motors.

Burnham, Williams, & Co., - - Philadelphia, Pa., U.S.A.

ESTABLISHED 1849

CHAS. F. CLARK, Pres. JARED CHITTENDEN, Treas.

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THOS. C. IRVING,
Gen. Mgr. Western Canada, TORONTO, ONT.

Change in one line. Help this

vited by the Pacific Cable Committee on behalf of Her Majesty's Government & the Governments of Canada, New South Wales, Victoria, New Zealand & Queensland. It is proposed to divide the whole undertaking under three distinct contracts, for any one or more of which contractors may tender. Each of these contracts will include a clause under which the contractor guarantees the good electrical condition & working order of the cables for 30 consecutive days after the completion of the laying. A fourth contract is also proposed for surveying & sounding the whole route before the cables are laid. The last day for the reception of tenders in London, Eng., is Aug. 14.

In the introduction to the official catalogue of the Canadian Section of the Paris Exposition, Geo. Johnson, F.S.S., says:—"When British North America sent her wares to the London Exhibition of 1851, the country had just begun to supply herself with telegraph lines. Montreal & Quebec had been connected by wire for three years; a single uninsulated wire connecting Toronto, Hamilton, Niagara & St. Catharines was all that Upper Canada had to show. Nova Scotia & New Brunswick had inaugurated the electric telegraph a couple of years before. There may have been 300 or 400 miles of wire strung throughout the country at that date. Now there are 76,000 miles. In 1851 there may have been a score of offices for the transmission of telegrams. There are now over 2,600, or one for every 2,000 of the people, Canada, in this respect, standing ahead of most European & of all American countries."

In the House of Commons, July 2, upon concurrence in the vote for telegraphs, Sir Adolphe Caron complained that although the Canadian, British Columbia & Dawson City Telegraph Co., of which he & ex-Premier Turner of British Columbia were directors, had been chartered by Parliament for the purpose of building a telegraph line to Dawson, the Government had built a line itself. He urged that such action on the part of the Government had done much injury to Canadian enterprise in London. He urged the claim of the Co. for consideration, in view of the expense it had been put to in anticipation of building the line. Mr. Mulock, not being aware of the facts to which Sir Adolphe alluded, could not discuss the claim of the Co. for indemnity. He quite endorsed the position taken by Sir Adolphe as to the duty of the Government to keep faith not only with those who take charters but with the public who invest in enterprises. Judging from the statements of Sir Adolphe, however, the claims rested upon statements which had been made by the ministers of Public Works & Railways & Canals individually. When the Minister of Public Works returned he would bring the matter to his attention.

Dominion Government Telegraph Lines.

J. B. Charleson, who is in charge of construction of the line from Quesnelle to Atlin, B.C., to connect with the line to Dawson, Yukon, on arriving at Vancouver, July 16, said he had been informed by the Public Works Department that \$12,000 had been appropriated for the construction of a telegraph line connecting the present system from Dawson to Fort Cudahy, on the international boundary, & that Brigadier-General Greeley, of the U.S. War Office, had informed the Government that a cable was to be laid from Nome to St. Michael, & a land line from St. Michael to connect with the Canadian branch line to Fort Cudahy. The U.S. Government will build the line in connection with the signal service of the U.S. War Department, & it will be constructed under the direction of F. Green. Before leaving Chicago for Alaska early in August, General

Greeley said: "Some time ago I perfected arrangements with the Dominion Government & already the Canadian engineers are building their line from Dawson northwesterly to meet ours at the boundary. The two Governments have joined hands to carry the wires through the heart of the northern wilderness."

An Ottawa despatch of Aug. 3 says: "J. B. Charleson reports that the section from Atlin to Telegraph Creek, 222 miles, is completed. The section from Tagish to Atlin, 80 miles, was previously built, which makes 302 miles of wire at the northern end. To the south, wires have been strung from Quesnelle to Hazelton, 342 miles, leaving 300 miles between the two inside ends of the wire. A connection will be made about the end of Sept., or early in Oct. About the same time connection will be made with the line into Dawson. The line from Quesnelle to Ashcroft, 220 miles, is being re-poled. Branches are to be built to Horse Fly, 72 miles, & from French Lake to Manson Creek, in the Omineca district.

Dominion Telegraph Company.

At the annual meeting in Toronto, July 11, the following financial report was presented:—

ASSETS.	
Capital expenditure.....	\$1,281,819 47
Toronto, Grey & Bruce Ry. Co.	
1983 bonds, & interest thereon..	1,596 24
Cash in bank & on hand.....	30,194 16
	<u>\$1,313,609 87</u>
LIABILITIES.	
Capital stock paid up.....	\$1,000,000 00
Dividends unclaimed.....	1,787 20
Dividend payable July 16, 1900....	14,000 00
Suspense.....	372 13
	<u>\$1,016,159 33</u>
Balance of credit of profit & loss account.....	297,450 54
	<u>\$1,313,609 87</u>

The directors reported the payment to the Co., by the lessees—the Western Union Telegraph Co.—of the guaranteed interest of 6% per annum on the capital stock of the Co., up to & including June 30, 1900, the proceeds of which have been promptly distributed quarterly to the shareholders.

Following is the organization for the current year:—President, T. Swinyard; Vice-President, Sir Frank Smith; other directors, General T. T. Eckert, C. A. Tinker, A. G. Ramsay, H. Pellatt, H. Mackenzie, T. F. Clark, T. R. Wood; Secretary-Treasurer, F. Roper.

General Telephone Matters.

Poles for the New Brunswick Tel. Co.'s line from Fredericton to Chatham are erected as far as Green Hill.

The Bell Co. has recently issued official directories of subscribers for Montreal city & suburbs, Southern Quebec & Northern Quebec.

The Kinnear's Mills Telephone Co. states that the proposed line from Kinnear's Mills to Thedford Mines will probably not be built this year.

The Bell Co. is making extensive improvements to its Winnipeg premises & system, including the laying of underground cables on Portage Avenue.

The Gloucester Tel. Co., Ltd., is being incorporated; capital, \$2,000; chief place of business, Bathurst, N.B. R. Ross, J. H. Stewart & C. Ross, Bathurst, are directors.

The Edmonton, Alberta, District Tel. Co. reports 37 miles of wire and 99 instruments in use. This includes the lines to St. Albert, Morinville & Strathcona. The poles & wire for the Morinville line were furnished by the Dominion Government.

The Bell Co. has completed a copper metal-

lic line from Three Rivers to Shawinigan Falls & Grand Mere, Que., providing those places with perfect communication to Montreal, Toronto, Quebec, Ottawa, Boston, New York & intermediate points.

The New Brunswick Telephone Co. has linemen going over the line between St. John & Fredericton, repairing the poles & cross bars & putting everything in shape for stretching the new copper wire which the Co. is to install over all its trunk system.

The Neepawa, Man., telephone system, which is operated by the town, has 117 subscribers & a number of applications for connection. The rates are \$20 for business & \$10 for house service. The system is metallic, & the wire mileage is about 10 miles.

In the introduction to the official catalogue of the Canadian Section of the Paris Exposition, Geo. Johnson, F.S.S., says: "In 1851 there were, of course, no telephones in Canada. There are now 90,000 miles of wire under the administration of 62 companies, so that city & country are well supplied with these time-savers."

The New Brunswick Tel. Co. is perfecting its long distance service throughout the province, & is constructing lines between St. John & St. Stephen, & between Fredericton & Chatham. A copper line has been stretched between St. John & Moncton. The St. John exchange is to be reconstructed & brought up to date.

The Bell Co. is building about 200 miles of long distance lines in Manitoba this year. The principal line is from Winnipeg to Brandon, with intermediate offices at Portage la Prairie, MacGregor, & Carberry. The line has been completed between Winnipeg & Portage la Prairie. A branch line will run from Carberry via Neepawa to Minnedosa, with intermediate offices at Neepawa & Franklin.

In reference to the statement published in our last issue to the effect that a telephone line, in which the Bonny River Lumber Co. is said to be interested, is being built between St. Martins & St. John, N.B., we are informed that no new line is being built between the points mentioned. The New Brunswick Telephone Co. is building between St. John & St. Stephen, N.B., also from Fredericton to Chatham, N.B.

The Berlin, Ont., Town Council has unanimously carried this resolution: "That the valuable exclusive franchise granted to the Bell Tel. Co. to operate its system in this municipality be not renewed at its expiration, but that the matter be referred to the fire & water committee with a view of investigating & ascertaining the probable cost & revenue of establishing a permanent local town system & operating therewith the town fire alarm system."

The telephonograph is a new invention which comes from Denmark. It is a combination of the telephone with a newly constructed phonograph, which makes it possible to fix & preserve conversations in the absence of the intended hearer, so that he can listen to the message after his return. But the importance of the invention reaches much further. Through the use of magneto-phonography it is possible to multiply the effect of the sound & to give the sound greater force.

The telephone has superseded the telegraph to a certain extent on the Santa Fe Ry. The Co. has now in operation on the Chicago, eastern & middle divisions, a private telephone system connecting the majority of the block signal stations, & the passage of trains in & out of the various blocks is now scheduled from operator to operator by telephone instead of telegraph as heretofore. However, the management of the road believes in the telephone as a means of communication in railroad work only to a limited extent.

E. A. Chenery, Superintendent of Telegraph, Terminal R.R. Association of St. Louis, says—"The time is not yet ripe, & I question whether it ever will be, for railways to dispense entirely with the telegraph in the handling of their vast business. That a great amount of matter now sent by telegraph might as well go by mail is as true as that a larger amount of such business, in order to obtain quick results, could better be handled by telephone. Great benefits are obtained at large terminals where adequate telephone facilities are provided. Delays in placing of car orders, engine assignments, material orders, working directions & numberless other important matters, which formally resulted when the telegraph was used, seldom occur now since the advent of the up-to-date telephone system. The fault for the delays referred to is not necessarily always with the telephone department, as seems to be the general impression. Messages often are dictated to a stenographer along with a bunch of letters, & in due course of time reach the hands of a messenger whose ultimate destination is the telegraph office, the messages finally landing on the operator's table where they meet with delay again, the operator having a moment before 'cleared' the office for which the same is destined, & the wire is now busy. All this time the sender of the message is waiting for a reply & blames the telegraph for the long wait. How much more satisfaction is there in the telephone method, when with one on your desk you call up your man, issue directions or get information desired in about the same time it takes to dictate a message after the manner first mentioned. Several progressive railways are recognizing the value of the telephone & are equipping

their terminals with modern exchanges, they in turn connected with long-distance service, & each terminal brought in close touch with the general office. When the value of such facilities become better known, the handling of the general business of a railway will be greatly improved."

Time Service on C.P.R. Western Lines.

Manager Whyte has issued a circular reorganizing the time service on the C.P.R. lines west of Fort William. The following rules went into effect July 15 :

Train masters, road foremen of locomotives, roadmasters, bridge & building masters, conductors, engineers, train baggagemen, brakemen, firemen, yard masters & yard foremen must each carry a "standard" watch when on duty. The minimum standard of excellence adopted by this Co. is a grade known among American movements as 17 jewelled, Breguet hair spring, patent regulator, adjusted to temperature, isochronism, & at least three positions, & corresponding to Waltham, Appleton, Tracy & Co. Nickel, Elgin B. W. Raymond Nickel, Hampden New Railway, Illinois Bunn, Hamilton 936, Ball Official Standard, & all grades equal or above, the variation of which must not exceed 30 seconds a week.

Employees required to carry standard watches must submit them for half-yearly inspection in Jan. & July of each year, to the various watch inspectors, of whom 15 have been appointed on the Western & Pacific Divisions. Every employee designated above must apply to his superior officer during Jan. & July of each year, for an order for examination which he must take or send together with his watch to

the inspector, who will, if the watch is satisfactory, issue a certificate & forward it to such superior officer. If the watch is below the standard it is to be rejected, & such superior officer promptly advised. Any watch so rejected must not be used in service nor passed upon by another inspector. Employees working where no inspector is accessible will be notified where to send their watches, together with the orders for examination.

In addition to the half-yearly inspection, the employees designated above must submit their watches to the inspectors for comparison with standard time within each of the first & third weeks of each month hereafter, so that a record of the rating of their watches may be made. This comparison & rating of watches with standard time is of great importance, & if it is not possible for employees to submit their watches for the purpose during the weeks stated above, they must do so on the first opportunity thereafter. It is desirable that watches should be submitted for this purpose oftener than twice every month if employees are able to do so, & indeed as frequently as possible. No charge will be made for the semi-monthly or more frequent comparison or for the half-yearly inspection of watches by the designated inspectors. Cards for keeping the record of the rating of their watches will be furnished to employees by the inspectors, & a similar record must be kept by the inspectors, who shall forward them to the Chief Inspector of Time Service at the end of each quarter.

Employees must not themselves set or regulate their watches unless a watch stops owing to neglect to wind it. The non-observance of this rule will render the rating records of their watches valueless & defeat the object desired

C. P. R. LANDS.

The Canadian Pacific Railway lands consist of the odd-numbered sections along the Main Line and Branches, and in Northern Alberta and the Lake Dauphin District. The Railway Lands are for sale at the various agencies of the company in Manitoba and the North-West Territories at the following prices :

Lands in the Province of Manitoba average \$3 to \$6 an acre.

Lands in Assiniboia, east of the 3rd meridian, average \$3 to \$4 an acre

Lands west of the 3rd meridian, including the Calgary District, generally \$3 per acre.

Lands in Northern Alberta and the Lake Dauphin District, \$3 per acre.

TERMS OF PAYMENT.

The aggregate amount of purchase money and interest is divided into ten instalments, as shown in the table below ; the first to be paid at the time of purchase, the second two years from the date of purchase, the third in three years, and so on.

Interest on the outstanding purchase money is payable in one year, except in case of an actual settler who breaks up at least one-sixteenth of the land within that time. No rebate of interest is allowed on hay or grazing lands.

The following table shows the amount of the annual instalments on a quarter section of 160 acres at different prices under the new conditions :

160 acres at \$3.00 per acre, 1st instalment \$71.90, and nine equal instalments of \$60.
160 acres at \$3.50 per acre, 1st instalment \$83.90, and nine equal instalments of \$70.
160 acres at \$4.00 per acre, 1st instalment \$95.85, and nine equal instalments of \$80.
160 acres at \$4.50 per acre, 1st instalment \$107.85, and nine equal instalments of \$90.
160 acres at \$5.00 per acre, 1st instalment \$119.85, and nine equal instalments of \$100.
160 acres at \$5.50 per acre, 1st instalment \$131.80, and nine equal instalments of \$110.
160 acres at \$6.00 per acre, 1st instalment \$143.80, and nine equal instalments of \$120.

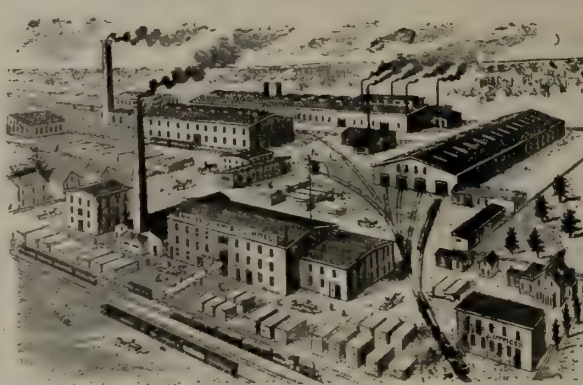
DISCOUNT FOR CASH. If land is paid for in full at time of purchase, a reduction from price will be allowed equal to ten per cent. of the amount paid in excess of the usual cash instalment.

Purchasers paying any instalment, or more, one full year before the date of maturity, will be allowed a discount on the amount of the instalment or instalments so paid at the rate of six per cent. per annum.

Interest at six per cent. will be charged on overdue instalments.

Write for maps and full particulars.

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J. R. Booth Elevator, Depot Harbor, Ontario.	"	1,000,000 "
Cleveland Elevator Company's Elevator, Cleveland, O.	"	500,000 "
Erie R. R. Transfer & Clipping House, Chicago, Ill.	"	100 cars in 10 hrs.
Manchester Ship Canal Co.'s Elevator, Manchester, Eng.	"	1,500,000 "
Burlington Elevator Co., Peoria, Ill.	"	500,000 "
Canada Atlantic Railway Elevator, Coteau Landing, Que.	"	500,000 "
Northern Grain Co., Manitowoc, Wis.	"	1,350,000 "
Union Elevator, East St. Louis, Ill.	"	1,100,000 "
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to be attained, namely, that of securing to every employe a watch regulated well within the limit of variation allowed by the Co.

Watches must be cleaned at least once in 15 months, but it is not advisable to postpone this to the limit, as inspectors cannot possibly provide standard loaning watches for all at one time. When watches need cleaning or repairing they may be left with the inspector, or if the owner desires, may be taken to such watchmaker as the owner may select, but the watch carried in the meantime, before being used in service, must be submitted to the inspector for examination, who will, if satisfactory, issue a certificate & mark across it "loaned watch," & forward each certificate at once to the Chief Inspector of Time Service. When a watch is repaired or cleaned by other than an inspector, it must afterwards & before being used in service be submitted to the inspector for examination & approval. An employe having his watch cleaned by other than an inspector must get from him a statement in writing as to the cleaning of the watch & the date thereof, because when the watch is presented for half-yearly inspection the inspector cannot issue certificate without proof of the cleaning. When a watch is left with the inspectors of the Co. to be cleaned or repaired, a standard watch will be loaned to the employe free of charge, until his own is returned to him, but the loaning watch must not be kept out longer than 15 days without the permission of the inspector.

Inspectors will supply a watch movement of the minimum standard of excellence for use on this railway, put up in a case of such metal as the employe may wish, with the price, if desired, payable in monthly payments as may be agreed upon—not, however, exceeding 4 in number—the amount of such payments to the inspectors to be deducted from the pay roll, if desired. It is not obligatory on employes to purchase standard watches from the inspectors, but all watch movements must be up to the Co.'s standard.

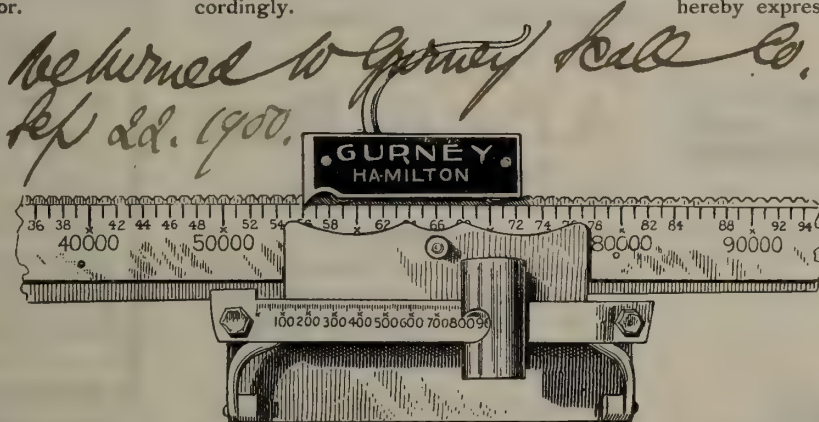
Superintendents will send lists of employes who are required to carry standard watches to the inspectors before the commencement of each half-yearly inspection (that is the last week of June & Dec. of each year) & inspectors will thereon check off the watches as presented for inspection, returning all lists to the Superintendent at the end of the inspection months (Jan. & July). Superintendents will see that all certificates of the half-yearly inspection of watches are filed with them by the end of the months of Jan. & July in each year.

All employes of the Operating Department who, under these instructions, are not required to carry a standard watch must, if opportunity offers, compare their watches daily with standard time. Roadmasters & bridge & building masters must compare their watches with the watches of their foremen whenever opportunity offers.

The purpose & aim of this system of watch inspection being to ensure efficiency & safety in train service, & afford greater security to life & property, the hearty co-operation of employes in making the operation of the system successful is earnestly enjoined. It is hoped that officers & employes, other than those who by these instructions are required to carry standard watches, will, as opportunity offers, furnish themselves with such watches.

Agents & others in charge of the Co.'s clocks have been notified that clocks will not

be allowed to remain in service until, owing to their defective condition, they no longer keep reliable time, but will be ordered to Winnipeg by the Chief Inspector of Time Service for cleaning & repair about every two years. When a clock requires to be sent in for cleaning or repair, a relief clock will first be supplied by the Assistant Inspector of Time Service. The clock requiring repairs must then be shipped to him. In the event of a clock getting out of order before it is ordered in for cleaning or repair, the agent or employe in charge of it must report the fact by wire to the Assistant Inspector at Winnipeg, so that a relief clock may be supplied & the defective clock shipped to him at once. Cards will be supplied to agents & those in charge of clocks with which enginemen & trainmen will compare their watches (which will hereafter be known as comparison clocks) for recording the daily rating & the winding, setting & regulating of such clocks. These cards must, after the record of each month is complete, be forwarded to the Chief Inspector of Time Service, Montreal. Agents & others in charge of the Co.'s clocks must, hereafter, every day without fail, compare them with standard time, & if they vary more than 30 seconds, correct them, setting them at 8.55, 9.55, or 10.55, whichever hour it may be that standard time is sent over the Co.'s wires on the division, & checking them with standard time at 8.56, 9.56, or 10.56 accordingly.



REED RECORDING ATTACHMENT FOR RAILWAY TRACK SCALES.

Recording Attachment for Track Scales.

The Gurney Scale Co., Hamilton, Ont., has issued a circular about the Reed Recording Attachment for railway track scales. The circular says the attachment is designed to give a mechanical record of weight shown on the beam, thereby avoiding all disputes which so frequently arise in taking the weight from the beam in the ordinary manner. In the use of the Reed Recording attachment a mechanical record of the weight is obtained & it is not necessary for the weighmaster to read the beam. Railway managers & users of railway track scales generally will appreciate the advantage of securing an absolute correct record of weights. It is claimed that the Reed Recording Attachment embraces the following advantages: Simplicity of construction, absolute accuracy of record, complete record of weight at one operation, a movement that is not affected by dirt, dust or the weather, no type, ink pads, electric battery or clock work, necessity of reading the beam obviated, can be applied to any scale now in use.

The illustration on this page shows a section of a railway track scale beam equipped with the Reed Recording Attachment. The construction, it will be noticed, is as simple as that of the ordinary railway track scale beam, the sliding poises being as free to move as without the Attachment. In the beam are placed puncturing pins at intervals on an in-

cline to correspond to lines of figures on a graduated card. The large poise is provided with a card-holder; the small poise has a brass casting & a puncturing pin which extends back to the card-holder. When weighing a load, a graduated card is placed in the card-holder. After the beam is balanced the holder is pressed toward the beam & the recording pins puncture the card. One movement records the total weight of the load. The card-holder is the only extra movable part over that of the ordinary beam. The correct weight can be had in less time than by reading the beam, & a record is obtained which can be referred to at any time. The Recording Attachment presents a great advantage when weights are in dispute, & the burden of proof will rest upon the party who has no attachment on his scale.

Amendments to the Railway Act.

As it will probably be some little time before the acts passed at the last session of the Dominion House are printed, we give the provisions of the Act to amend the Railway Act in full as follows. It is chap. 23 of the statutes of the session:—

1. The Railway Act, chapter 29 of the statutes of 1888, is amended by inserting, after section 6, the following section:—

"6a. Street railways and tramways, while hereby expressly declared to be subject to such of the provisions of this Act as are referred to in section 4, shall not by reason only of the fact of crossing or connecting with one or other of the lines of railway mentioned in section 306 be taken or considered to be works for the general advantage of Canada, nor to be subject to any other of the provisions of this Act."

2. The said section 6a shall also apply to all electric railways (as distinguished from electric street railways) passing through or over the Queen Victoria Niagara Falls Park, or through or over the property of the province of Ontario lying upon or along the Niagara River & known as the Chain Reserve.

(2.) The said Act is further amended by inserting after section 14, the following sections:—

14a. Whenever proceedings for the drainage of lands have been taken by any landowner under the provisions of an Act of the legislature of any province in that behalf, & it appears to the Railway Committee that an outlet for such drainage works is required over, across or under the lands of the Company, the Railway Committee may, upon the application of the landowner or engineer in charge of the works, or of the clerk of the municipality, & on due notice to & hearing the parties, order the Company to construct & provide upon its lands all necessary means of drainage, as in such order specified, upon the landowner first complying with such terms as to payment or security, if any, for payment of the whole or so much of the cost of construction & maintenance of the said drainage works, as the Railway Committee in such order provides.

14b. Whenever any application is made under the last preceding section or under section 14 of this Act, the Railway Committee may, if it thinks proper, direct an inquiry to be made in the locality in question by a person appointed under section 12 of this Act, & may authorize such person to hear the parties & take evidence under oath, & may also, if it

thinks proper, act on his report without further hearing of the parties.

3. Paragraph (d) of subsection 1 of section 90 of the said Act is repealed, & the following is substituted therefor:

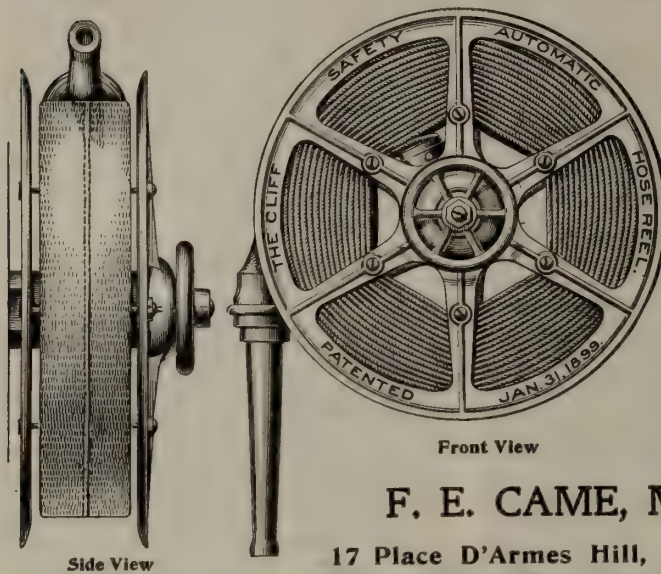
"(d) make, carry or place the railway

across or upon the lands of any person on the located line of the railway."

4. Section 117 of the said Act is repealed & the following section is substituted therefor:

"117. Except in accordance with the pro-

visions of section 120 or 130, no deviation shall be made from the located line of railway, or from the places assigned thereto in the map or plan & book of reference sanctioned by the Minister under the provisions of section 124."



Front View

Side View

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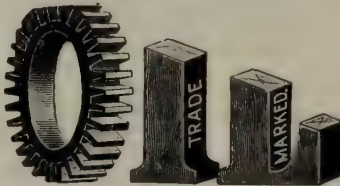
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5. Section 118 of the said Act is repealed & the following is substituted therefor:

"118. The railway may be made, carried or placed across or upon the lands of any person on the located line, although the name of such person has not been entered in the book of reference, through error or any other cause, or although some other person is erroneously mentioned as the owner of or entitled to convey, or is interested in such lands."

6. Sections 123, 124 & 125 of the said Act are repealed & the following sections are substituted therefor:

"123. The Company shall make, in sections if it so desires, a map or plan & a profile of the line of railway, showing its course & direction, levels, gradient & curvature, & also the open drains & water-courses & the public highways to be crossed or run along or over by such line of railway; & a book of reference shall also be made, giving a general description of the said lands, the names of the owners or occupiers thereof, so far as they can be ascertained, & any other information required by the Minister for the proper understanding of the map or plan & profile.

"124. Such map or plan & profile & book of reference shall be submitted for the approval of, & may be sanctioned by the Minister.

"125. The map or plan & profile, & book of reference, so sanctioned, shall be deposited in the department; & the Company shall also deposit copies thereof, or of such parts thereof as relate to each district or county through which the railway is to pass, duly certified as copies by the Minister or by the deputy, in the offices of the registrars of deeds for such districts or counties respectively."

7. Section 129 of the said Act is repealed, & the following is substituted therefor:

"129. The certificate shall state the particulars of any such omission, & the manner thereof, & shall be deposited with the registrars of deeds of the districts or counties, respectively, in which such lands are situate, & shall be kept by them together with the other documents to which it relates, & thereupon such map or plan, or book of reference, shall be deemed to be corrected according to such certificate."

8. Sections 130 & 131 of the said Act are repealed & the following sections are substituted therefor:

"130. If any alterations are desired in the location of the line of railway as sanctioned as aforesaid, a map or plan & profile of the section of railway proposed to be altered, prepared on the same scale as the original map or plan & profile, & a book of reference, shall be submitted for the approval of, & may be sanctioned by, the Railway Committee, & the same, when so sanctioned, shall be deposited in the department, & copies thereof, or of extracts therefrom, certified by the Minister or deputy, shall, so far as they relate to the several districts or counties affected by such alterations, be deposited with the registrars of deeds of such districts & counties.

"131. The Company shall not commence the construction of the railway until the provisions of sections 124 & 125 are fully complied with, nor shall work be commenced on any alteration of the located line (other than as provided for in section 120) until the provisions of section 130 are fully complied with."

9. Section 217 of the said Act is repealed & the following section is substituted therefor:

"217. All such by-laws, rules & regulations shall be submitted to the Governor in Council for approval. The Governor in Council may sanction them, or any of them, or any part thereof, & may from time to time rescind the sanction of any such by-law, rule or regulation, or of any part thereof. Except when so sanctioned no by-law, rule or regulation shall have any force or effect.

"2. The Railway Committee may, from time to time, appoint competent persons to advise or assist the Committee in the revision of any of such by-laws, rules or regulations, or any other matter coming before the Committee, & any person so appointed may be paid out of the unappropriated funds in the hands of the Receiver-General."

10. The location of each station to be erected on any railway, the construction of which is authorized by any Act of the Parliament of Canada passed subsequent to the first day of June, one thousand eight hundred & ninety-nine, shall be subject to the approval of the Railway Committee of the Privy Council before the Company proceeds to erect such station, & the Company shall erect & maintain a station as so located, with such usual & ordinary facilities as are ordered, unless & except in so far as the Railway Committee from time to time otherwise orders.

11. In the case of a railway not subject to the legislative authority of the Parliament of Canada, but subsidized hereafter in money or in land under the authority of an Act of that Parliament, the payment & acceptance of such subsidy shall be taken to be subject to the covenant or condition (whether expressed or not in any agreement relating to such subsidy) that the company for the time being owning or operating such railway shall, when thereto directed by order of the Railway Committee, confirmed by the Governor-in-Council, erect, maintain & operate a station, with such accommodation or facilities in connection therewith as are defined by the committee, at such point or points on the railway as are designated in such order.

United States Railway Statistics.

From summaries which will appear in the 12th Statistical Report of the Interstate Commerce Commission, being the complete report for the year ended June 30, 1899, for which a preliminary income account was issued in Dec., 1899, the figures in the following advance statement are obtained. Nearly 80 summaries of railway returns appear in the text of the report. For the purpose of localizing statistics data, as a rule, are presented for each of the 10 territorial groups into which the country is divided, as well as for the U.S. as a whole. In the body of the report are the usual tables giving mileage, capitalization, earnings, expenses, etc., by roads.

RECEIVERSHIPS.—The number of railways in the hands of receivers on June 30, 1899, was 71, there being a net decrease of 23 as compared with June 30, 1898. The number of railways placed in charge of receivers during the year was 16, & the number removed from their management was 39. The operated mileage of the roads under receivers on June 30, 1899, was 9,853.13 miles, of which 7,225.62 miles were owned by them. Of the roads in the hands of receivers on the date named 10 had an operated mileage in excess of 300 miles, 10 between 100 & 300 miles, & 40 less than 100 miles. Complete returns for roads in the custody of the courts are not always available, but it appears that the capital stock represented by railways under receiverships on June 30, 1899, was about \$220,210,688; funded debt \$306,486,740, & current liabilities \$59,180,823. These figures show a decrease of \$43,926,703 in capital stock represented as compared with the previous year, & of \$16,405,951 in funded debt.

MILEAGE.—On June 30, 1899, the total single-track railway mileage in the U. S. was 189,294.66 miles, an increase during the year of 2,898.34 miles being shown. This increase is greater than for any other year since 1893. The states & territories which show an increase in mileage in excess of 100 miles are Alabama, Arkansas, Georgia, Louisiana, Michigan, Minnesota, Pennsylvania, Texas, Arizona, New Mexico & Oklahoma. Practi-

cally all of the railway mileage of the country is covered by reports made to the Commission, the amount not covered being 1,759.98 miles, or 0.93 % of the total single-track mileage. The aggregate length of railway mileage, including tracks of all kinds, was 252,364.48 miles. The distribution of this aggregate mileage was as follows: single track, 189,294.66 miles; second track, 11,546.54 miles; third track, 1,047.37 miles; fourth track, 790.27 miles; yard track & sidings, 49,685.64 miles.

CLASSIFICATION.—The number of railway corporations included in the report on the Statistics of Railways in the U.S. was 2,049. Of this number 1,064 maintained operating accounts, 843 being classed as independent operating roads & 221 as subsidiary roads. Of roads operated under lease or some other form of contract, 323 received a fixed money rental, 171 a contingent money rental, & 274 were operated under some form of agreement or control not readily classified. The operated mileage of roads merged, reorganized, or consolidated during the year was 5,846.35 miles. The corresponding figure for 1898 was 7,220.42 miles.

EQUIPMENT.—There were 36,703 locomotives in the service of the railways on June 30, 1899, or 469 more than the year previous. Of the total number reported, 9,894 are classed as passenger locomotives, 20,728 as freight locomotives, 5,480 as switching locomotives, & 601 are not classified.

The total number of cars of all classes in the service of the railways on June 30, 1899, was 1,375,916, an increase of 49,742 being shown in this item. Of the total number, 33,850 are assigned to the passenger service, 1,295,510 to the freight service, & 46,556 to the direct service of the railways. It should be understood, however, that cars owned by private companies & firms used by railways are not included in the returns made to the Commission. The report under review contains summaries intended to indicate the density of equipment & the extent to which it is used. It appears that the railways of the U.S. used on the average 20 locomotives & 734 cars per 100 miles of line; that 52,878 passengers were carried, & 1,474,765 passenger-miles accomplished, per passenger locomotive, & that 46,303 tons of freight were carried, & 5,966,193 ton-miles accomplished, per freight locomotive. All of these items show an increase when compared with corresponding items for the preceding year. There was also a decrease in the number of passenger cars per 1,000,000 passengers carried, & a decrease in the number of freight cars per 1,000,000 tons of freight carried.

Both locomotives & cars being embraced in the term equipment, it is observed that the total equipment of the railways on June 30, 1899, was 1,412,619. Of this number 808,074 were fitted with train brakes, the increase being 166,812 & 1,137,719 were fitted with automatic couplers, the increase in this item being 228,145.

Practically all locomotives & cars in the passenger service were fitted with train brakes, & of 9,894 locomotives assigned to that service 6,128 were fitted with automatic couplers. Nearly all passenger cars were fitted with automatic couplers. With respect to freight equipment, it is noted that nearly all freight locomotives were equipped with train brakes & 45% of them with automatic couplers. Of 1,295,510 cars in the freight service on June 30, 1899, 730,670 were fitted with train brakes & 1,067,338 with automatic couplers.

EMPLOYEES.—The number of persons employed by the railways of the U.S. as reported on June 30, 1899, was 928,924, or an average of 495 employees per 100 miles of line. As compared with the number employed on June 30, 1898, there was an increase of 54,366, or 21 per 100 miles of line. From the classification of

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1882	1,134	12,058 86	2,967 93	2 61	11.00
1883	2,210	9,493 68	10,857 65	4 91	4.73
1884	2,558	13,914 31	23,081 85	9 01	4.23
1885	3,642	26,576 99	29,802 42	8 18	7.76
1886	5,804	28,499 82	53,981 28	9 30	4.85
1887	7,811	59,014 67	81,384 41	10 44	5.78
1888	11,800	89,018 16	117,821 96	9 98	6.43
1889	17,349	116,787 82	188,130 36	10 84	5.85
1890	24,604	181,846 79	283,967 20	11 54	5.18
1891	32,303	261,436 21	408,798 20	12 65	6.40
1892	43,024	344,748 82	580,597 85	13 49	6.25
1893	54,484	392,185 93	858,857 89	15 76	5.47
1894	70,055	511,162 30	1,187,225 11	16 94	5.47
1895	86,521	685,000 18	1,560,733 16	18 03	5.67
1896	102,838	820,941 91	2,015,484 38	19 60	5.50
1897	124,685	992,225 60	2,558,832 78	20 52	5.56
1898	144,000	1,176,125 14	3,186,370 36	22 12	5.67
1899	163,610	1,430,200 33	3,778,543 58	23 09	6.30

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these employees it appears that there were 39,970 enginemen, 41,152 firemen, 28,232 conductors, & 69,497 other trainmen. There were 48,686 switchmen, flagmen and watchmen. Upon the basis of special returns made to the Commission, it appears that the number of switchmen, flagmen & watchmen included in this aggregate could fairly be assigned in the proportion of 6, 3, & 2 respectively. Disregarding 9,334 employees not assigned to the four general divisions of employment, it is found that the services of 34,170 employees were required for general administration, 287,163 for maintenance of way & structures, 180,749 for maintenance of equipment, & 417,508 for conducting transportation.

The report contains a statement of the average daily compensation of 18 classes of employees for 8 years, beginning with 1892. A summary in the report also gives the total compensation of more than 99% of railway employees for the fiscal years 1895 to 1899. During the year ending June 30, 1899, \$522,967,896 were paid in wages & salaries, an amount of \$77,459,635 in excess of that paid during 1895. The compensation of the employees of railways for 1899 represents 60% of their operating expenses, & 40% of their gross earnings.

CAPITALIZATION & VALUATION OF PROPERTY.—The amount of railway capital outstanding on June 30, 1899, was \$11,033,954,898. This amount assigned to a mileage basis represents a capitalization of \$60,556 per mile of line. Of this amount of capital \$5,515,011,726 existed in the form of stock, of which \$4,323,300,969 was common stock & \$1,191,710,757 preferred stock. The amount which existed in the form of funded debt was \$5,518,943,172. This amount of funded debt was classified as mortgage bonds, \$4,731,154,376; miscellaneous obligations, \$485,781,695; income bonds, \$260,048,753; & equipment trust obligations, \$42,058,348. The amount of current liabilities not included in the foregoing capital statement was \$554,330,022, or \$3,042 per mile of line.

The amount of capital stock paying no dividend was \$3,275,509,181, or 59.39% of the total amount outstanding. The amount of funded debt, excluding equipment trust obligations, which paid no interest, was \$572,410,746. Of the stock paying dividends 11.91% of the total amount outstanding paid from 1 to 4%, 7.84% paid from 4 to 5%, 7.41% paid from 5 to 6%, 4.21% paid from 6 to 7%, & 5.18% paid from 7 to 8%. The amount of dividends declared during the year ending June 30, 1899, was \$111,009,822, which would be produced by an average rate of 4.96% on the stock on which some dividend was declared. The amount of mortgage bonds paying no interest was \$374,460,358, or 7.92%; of miscellaneous obligations, \$70,422,403, or 14.50%, & of income bonds, \$127,527,985, or 49.04%.

PUBLIC SERVICE.—The number of passengers carried during the year ending June 30, 1899, as shown in the annual reports of railways, was 523,176,508, showing an increase for the year of 22,109,827. The number of passengers carried 1 mile—that is, passenger mileage—during the year was 14,591,327,613, there being an increase in this item of 1,211,397,609. There was an increase in the density of passenger traffic, as the number of passengers carried 1 mile per mile of line in 1899 was 77,821, & in 1898, 72,462.

The number of tons of freight carried during the year was 959,763,583, an increase of 80,757,276 being shown. The number of tons of freight carried 1 mile—that is, ton mileage—was 123,667,257,153. The increase in the number of tons carried 1 mile was 9,589,680,848. The number of tons carried 1 mile per mile of line was 659,565. These figures show an increase in the density of freight traffic of 41,755 tons carried 1 mile per mile of line.

In the report is inserted a summary of freight

traffic analyzed on the basis of a commodity classification, & also a summary indicating in some degree the localization of the origin of railway freight by groups of commodities.

The average revenue per passenger per mile for the year ending June 30, 1899, was 1.925c.; for the preceding year it was 1.973c. The revenue per ton of freight per mile was .724c., while for 1898 it was .753c. An increase in mileage earnings is shown for both passenger & freight trains. The average cost of running a train 1 mile increased nearly 3c. as compared with 1898. The percentage of operating expenses to earnings shows a slight decrease as compared with the previous year.

EARNINGS AND EXPENSES.—For the year ending June 30, 1899, the gross earnings from the operations of the railways in the U.S., covering an operated mileage of 187,534.68 miles, were \$1,313,610,118, being \$66,284,497 more than for the preceding fiscal year. The operating expenses were \$856,968,999, the increase in this item being \$38,995,723. The details of gross earnings were as follows:—Passenger revenue, \$291,112,993—increase as compared with the preceding year, \$24,142,503; mail, \$35,999,011—increase, \$1,390,659; express, \$26,756,054—increase, \$847,979; other earnings from passenger service, \$7,687,363—increase, \$463,363; freight revenue, \$913,737,155—increase, \$37,009,436; other earnings from freight service, \$4,261,804—decrease, \$421,401; other earnings from operation, including unclassified items, \$34,055,738—increase, \$2,851,958. Gross earnings from operation per mile of line were \$250 more than for the year ending June 30, 1898, being \$7,005.

The operating expenses of the railways for the year under consideration were assigned as follows: Maintenance of way & structures, \$180,410,806; increase, \$7,095,848. Maintenance of equipment, \$150,919,249; increase, \$8,294,387. Conducting transportation, \$486,159,607; increase, \$21,485,331. General expenses, \$38,676,883; increase, \$2,200,197; undistributed, \$802,454. The operating expenses for the year in question were \$4,570 per mile of line, or \$140 more than for the previous year. An analysis of operating expenses for the year ending June 30, 1899, according to the 53 accounts embraced in the official classification, appears in the report, with a statement of the percentage of each item in the classified operating expenses for the years 1895 to 1899, inclusive.

The income from operation, or the amount of gross earnings remaining after the deduction of operating expenses, generally designated as net earnings, was \$456,641,119, an increase as compared with the year ending June 30, 1898, of \$27,288,774. The average amount per mile of line for 1899 was \$2,435 & for 1898, \$2,325. The amount of income received from sources other than operation was \$148,713,983. This amount covers the following items: Income from lease of road, \$96,352,295; dividends on stocks owned, \$20,104,521; interest on bonds owned, \$11,334,690; miscellaneous income, \$20,922,477. The total income of the railways, \$605,355,102—that is, the income from operation increased by the income from other sources—is the item from which fixed charges & analogous items are deducted in order to reach the amount available for dividends. Total deductions from income amounted to \$441,200,289, leaving \$164,154,813 as the net income of the year available for dividends or surplus.

The amount of dividends declared during the year, including \$80,114 other payments from net income, was \$111,089,936, leaving as the surplus from the operations of the year \$53,064,877, the corresponding surplus for the year ending June 30, 1898, being \$44,078,557.

The deductions from income, \$441,200,289, already mentioned, comprise the following items: Salaries & maintenance of organiza-

tion, \$595,192; interest accrued on funded debt, \$251,158,087; interest on current liabilities, \$7,102,847; rents paid for lease of road, \$94,406,737; taxes, \$46,337,632; permanent improvements charged to income account, \$13,070,045; other deductions, \$28,529,749.

In the consideration of the foregoing figures pertaining to income and expenditure it should be held in mind that annual reports of two kinds are made to the Commission by railway companies. Operating reports are filed by such companies as maintain full operating accounts, & financial reports by such companies as have leased their property to others for operation, their own income, apart from that derived from investments, being the annual fixed or contingent rental paid by their lessees, from which they make their own disbursements. From this fact certain items of income & expenditure are necessarily duplicated in comprehensive summaries which are compiled from reports of both classes. These conditions are fully explained by the Statistician in his report, which clearly indicates the extent to which duplications on the side of income & of expenditure exist. As a matter of interest the report contains also an income account of the railways of the U.S. considered as a system. The figures contained in this account are such as would be presented were the railways owned by the Government—operations, tariffs & expenses remaining the same. They eliminate intercorporate payments by making use, where necessary, of balance amounts.

ACCIDENTS.—The total number of casualties to persons on account of railway accidents during the year ending June 30, 1899, was 51,743. The aggregate number of persons killed as a result of railway accidents during the year was 7,123, & the number injured was 44,620. Of railway employees, 2,210 were killed & 34,923 were injured during the year covered by this report. With respect to the three general classes of employees, these casualties were divided as follows: Trainmen, 1,155 killed, 16,663 injured; switchmen, flagmen and watchmen, 273 killed, 2,992 injured; other employees, 782 killed, 15,268 injured. The casualties to employees resulting from coupling and uncoupling cars were, persons killed, 260; injured, 6,765. The corresponding figures for the preceding year were: killed, 279, injured, 6,988. The casualties from coupling and uncoupling cars are assigned as follows: trainmen, killed 180, injured 5,055; switchmen, flagmen & watchmen, killed 74, injured 1,533; other employees, killed 6, injured 177. The casualties resulting from falling from trains & engines are assigned as follows: trainmen killed 337, injured 3,053; switchmen, flagmen & watchmen, killed 60, injured 377; other employees, killed 62, injured 540. The casualties to the same three groups of employees caused by collisions & derailments were as follows: trainmen, killed 280, injured 1,713; switchmen, flagmen & watchmen, killed 14, injured 115; other employees, killed 40, injured 325.

The number of passengers killed during the year was 239, & the number injured was 3,442. Corresponding figures for the previous year were 221 killed & 2,945 injured. In consequence of collisions & derailments, 82 passengers were killed & 1,557 passengers were injured during the year embraced by this report. The total number of persons, other than employees & passengers, killed was 4,674, injured 6,255. These figures include casualties to persons classed as trespassers, of whom 4,040 were killed & 4,730 were injured. The total number of persons killed at highway crossings was 693, injured 1,125, distributed as follows: employees, 19 killed, 38 injured; passengers, 2 killed, 17 injured; other persons trespassing, 170 killed, 168 injured; not trespassing, 502 killed, 902 injured. The number of persons killed at stations was 443, injured 3,306. This statement covers: employees,

killed 83, injured 2,139; passengers, killed 37, injured 580; other persons trespassing, killed 282, injured 444; not trespassing, killed 41, injured 143. The summaries containing the ratio of casualties show that 1 out of every 420 employes was killed & 1 out of every 27 employes was injured. With reference to trainmen—including in the term engine-men, firemen, conductors & other trainmen—it is shown that 1 was killed for every 155 employed & 1 was injured for every 11 employed. One passenger was killed for every 2,189,023 carried, & 1 injured for every 151,998 carried. Ratios based upon the number of miles travelled, however, show that 61,051,580 passenger-miles were accomplished for each passenger killed, & 4,239,200 passenger miles accomplished for each passenger injured.

CONCLUSION.—The Statistician repeats his previous recommendations to the effect that reports should be secured from express companies engaged in interstate traffic; that reports should be secured from corporations

& companies owning rolling stock which is used in interstate traffic; & also special reports from corporations & companies owning depot property, stock yards, elevators & the like; & that reports should be secured from carriers by water, so far as their business is interstate traffic.

It is further stated that nothing has occurred in the administration of the statistical division of the Commission to weaken the confi-

dence expressed in former reports in the proposal that there should be established under the jurisdiction of the Commission a bureau of statistics & accounts, which shall have as its chief purpose the establishment of a uniform system of accounts for the carriers, & that it would be desirable also, should the Commission see fit, to provide for a monthly report of the earnings & expenses of operating railways.

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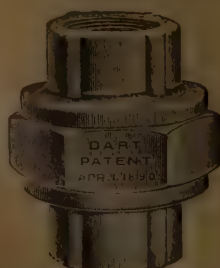
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THE CANADIAN PACIFIC RAILWAY, From Laggan to Revelstoke, British Columbia.

By William S. Vaux, Junr.

It is to one of the most difficult sections on the road to construct & maintain, lying between Laggan & Revelstoke in B.C., & embracing a mileage of but 147 miles, that I wish to draw your attention in this paper, & to explain some of the features of operation which must appeal to every traveller over the line.

The Rocky Mountain system, as it stretches northward, converges & contracts, until in B.C. it exceeds but little a breadth of 500 miles, being composed of four principal ranges — the Rocky, the Selkirk, the Gold & the Coast. In the construction of the railway it became necessary to cross all four of these

agreement permitting the construction of the road.

While the actual summit is at Stephen, the nominal one is at Laggan, a divisional point on the railway. Here engines are changed, & the whole train is given a thorough inspection before descending the steep grade of the Kicking Horse Pass. Once over the summit, there is a short space of comparative level, and then the increased grade of 4.4% is reached, down which the train is allowed to move at a very slow rate. Brakemen are stationed at ever platform, & it is amusing to see them at times jump from the cars & run alongside to watch the working of the brakes. Engines specially designed for the heavy grades are used between Field & Hector, & it is not at all uncommon for four of these to be required to take the east-bound express to the summit of the pass. This particular part of the road, nine miles in length, was constructed as a "temporary line" of much steeper grade than

scrapers. Some extracts from the record of the watchman at Hector Station may be of interest as giving an idea of the amount of snow expected during the winter months. While snow sometimes falls in every month in the year, the records usually begin about the first of November & end the middle of March, the average for this period for the past five years being 27 ft. 4 ins. On Aug. 15, 1890, during a heavy snowstorm that extended over this entire region, 12 ins. of snow fell at Hector. During the winter of 1897-98 the snowfall was 41 ft., while in 1898-99 but 23 ft. fell. It is an interesting fact that when the fall in the Rockies is heavy, the fall in the Selkirks is often light, & vice versa. The amount of snow that may fall in a very short time is sometimes almost incredible, & it is not unknown for 100 ins. to be recorded in two weeks, while in a single week 57 ins. have been observed. (See figure 3, page 261.)

Field, at the foot of the pass, is situated by

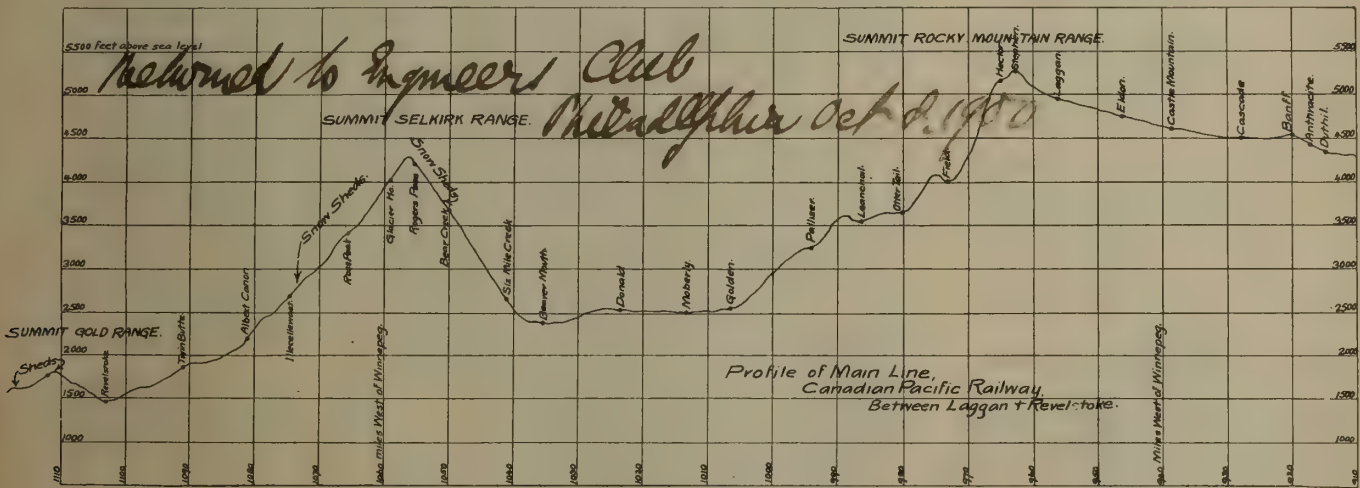


FIGURE 1.—PROFILE OF CANADIAN PACIFIC RAILWAY, BETWEEN LAGGAN AND REVELSTOKE, BRITISH COLUMBIA.

ranges. The canyon of the Fraser River where it crosses the Coast Range being used by the railway, a high pass was not necessary at that point, but the other ranges, being greater in altitude & more continuous, required heavy grades & passes in valleys several thousand feet above sea level. A number of routes were surveyed, it being desired to keep at least 100 miles from the International Boundary, & as far south as possible, in order to avoid the severe winters of the far north, & at no place to exceed a grade of 1%. After crossing a wide expanse of prairie the eastern slope of the Rocky Mountain range is ascended without difficulty through the comparatively level valley of the Bow River, almost to its source. The height of land is reached in a narrow valley, 5,296 ft. above sea level, on each side of which great snow-capped mountains stand as sentinels. At no point does the grade exceed 1%, the limit prescribed by the Government in its

that allowed by the Government. The contract route lies upon the almost perpendicular sides of Mt. Stephen to the left, & would involve extensive tunnelling, as well as passing directly beneath the forefoot of a glacier on this stupendous mountain, from which at times great masses of ice fall to the valley below. At intervals on the grade are located blind sidings running up the mountain-side at a steep grade. The switches of these sidings are tended by watchmen, who, on the signal of the engineer, throw the switches & allow the train to pass, when they are again opened. By this means a runaway car would be diverted from the main track before it had gone a sufficient distance to do serious damage.

The snowfall in this pass is heavy, but does not give the trouble experienced in the Selkirk range to the west. One reason for this is the absence of snow-slides across the track, & while the falls at times are very heavy, they can be readily handled by the plows &

the side of the Kicking Horse River, which is here a broad, muddy stream occupying but a fraction of its bed. The pass & river, like many other localities of the neighborhood, take their name from a peculiar incident. When Dr. James Hector, a member of the Palliser expedition, traversed the pass in 1858, he was so unfortunate as to be kicked in the chest by his riding horse while trying to catch a pack animal that had escaped. Being partly disabled, the party was obliged to camp for a number of days to await his recovery, & Kicking Horse was adopted as the name of the river & pass where the accident occurred.

After leaving Field several small ascents are encountered, but the general grade is downward until the lower canyon of the Kicking Horse is reached. Hemmed in on both sides by very steep rocky sides, there often is little room left for the railway beside the river, & it is forced to cross & recross on wooden Howe truss bridges, which will soon be sup-

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planted by more substantial steel. Some
tunnel work was required on this part of the
line. No difficulty has been experienced with
that through rock, but morainic material &
clay were encountered in several instances, &
gave endless trouble, owing to the expansion
of the loose masses. In one case the tunnel
caved in entirely, & it became necessary to
cross the river twice or to construct a curve
of exceedingly short radius to pass around it.
The latter plan was chosen, & a curve of 23°
was constructed. At first, in order to pass
this curve, all the cars were uncoupled &
fastened together with short chains, but after
a slight adjustment this has been rendered
unnecessary.

In these narrow canyons, occupied almost
entirely by rivers, freshets are of constant oc-
currence, & often do great damage. Con-
trary to what we are accustomed to in the
East, sudden rises in water are not often the
result of heavy rainstorms. While, of course,
these have some effect, yet the porous charac-
ter of the soil absorbs a large part of this
water. The rapid melting of the snow-fields
& ice masses caused by a spell of warm, moist
weather is almost entirely responsible for
these freshets, which, on this account, may
occur at any period of the summer months, &
may last for days, or perhaps weeks. The
melting caused by the heat of an ordinary
day is sufficient to change a brooklet to a rag-
ing torrent, while the effect on a river of larger
proportions is much more marked. These
rapid changes in the height of water have re-
quired a much more permanent construction
of embankments than would otherwise appear
necessary, & in this & other canyons the river
has been controlled by walls of solid masonry,
on which the tracks are laid, thus insuring
against accident even during the most severe
disturbances.

At Golden the railway suddenly emerges
from the narrow canyon of the Lower Kicking
Horse into the broad, level valley of the
Columbia River. Here the mountain ranges
are on either side—the Rockies on the right
& the Selkirks on the left. At this point the
course of the Columbia River is a little west
of north, until, finding a pass through the Sel-
kirk range, it completely reverses its direc-
tion & flows south to the international bound-
ary. By following the river an easy grade
could have been obtained for the railway, but
the cost of tunnelling & bridging would have
been very great. It was, therefore, decided
to shorten the distance some 80 miles—or
about one-third—by cutting directly across
the Selkirk range to the Columbia River be-
yond. The passes through this range were
entirely unknown until the explorations of
the engineers in laying out the line of the railway.
The Indians, owing to some superstitious be-
lief, would not enter the mountains, & prior to
1883, when Major A. B. Rogers discovered
the pass that now bears his name, the foot of
man had seldom crossed their slopes. After
following the level valley of the Columbia for
a number of miles the railway crosses the
river on a fine bridge, & as the valley rapidly
narrows, clings to the side far above the
water. At Beaver Mouth, which, as its name
indicates, is situated at the point where the
Beaver joins the Columbia, the latter river is
left on the right, still flowing in a northerly
direction, & the winding course of the Beaver
is followed. Extensive sawmills are situated
at this point, until recently driven by water-

power from a stream on the side of the foot-
hills led down in a flume & carried directly
under the railway by a great inverted siphon.
Now steam has exerted itself, & the flume, once
quite the wonder of the traveller, is rapidly
going to decay. After leaving Beaver Mouth
the canyon becomes very narrow, & at places
the stream is spanned by a single log thrown
across from bank to bank.

The difficulties in crossing the Selkirk range
lay not so much in the steepness of the grades,
which do not exceed 2.2%, or in the cost of
actual construction, as in the precautions it
was necessary to take against the immense
snowfall & terrible avalanches. The average
yearly snowfall between 1895 & 1898 was 31 ft.,
while in the winter of 1898-99 the recorded
fall was 43 ft. 8½ in. These amounts were
obtained after careful measurements on the
platform at Glacier House, & there is no
doubt as to their accuracy. The fall from
October, 1898, to May, 1899, in totals for each
month, is as follows:

1898.		10 inches.
October.....	8 feet 4½ "	
November.....	6 " 6 "	
December.....	6 " 6 "	
1899.		
January.....	9 " 2 "	
February.....	6 " 2 "	
March.....	6 " 2 "	
April.....	3 " 7 "	
May.....	2 " 4 "	
Total fall.....	43 feet 8½ inches.	

By the aid of rotary snow-plows any depth
of snow that has fallen directly from the sky
& is not intermingled with rocks, mud & tree-
trunks may be dug out & thrown to a con-
siderable distance from the track. Points
that are not liable to be covered with avalan-
ches are thus left unprotected, & there is sel-
dom serious difficulty in keeping the road
open, even during the most severe storms.
Where many rocks or trees are mingled with
the snow, or where the snow has been com-
pacted to ice, the problem is a much more
serious one, & great labor is involved in blast-
ing out the confused mass & clearing it away
by hand. (See figure 4, pg. 263.)

The immense banks of snow that are form-
ed on the mountain-sides frequently slip from
their insecure positions & go thundering to the
valley below, carrying with them masses of
rocks, trees & earth. These snow avalan-
ches & those composed of wet mud & stones
are most dreaded by the railway company, &
it has been in an endeavor to reduce their
power of destruction that costly structures in
the form of snow-sheds & bridges have been
erected.

Wood was used almost exclusively in the
first construction of the division crossing the
mountains. Timber was abundant, & in this
way the road was opened for traffic many
months before it would otherwise have been
possible. No provision was at first made
for protection from snow, but during the win-
ter of 1885-86 a corps of engineers was kept
constantly on the ground observing where the
worst slides took place, & how structures
should be built to withstand them. During
the following summer 35 sheds were con-
structed at the summits of the Selkirk & Gold
ranges, but the winter of 1886-87 being un-
usually severe, they were increased the next
summer to 53, with a total length of over 6
miles. This mileage has been added to slight-
ly from time to time as occasion arose.

The sheds, as constructed, are of two prin-
cipal types, according to the severity of the
avalanches to be withstood by them & the
position in which they occur. To protect the
track from the ordinary snowfall only, the
"level fall shed," a comparatively light struc-
ture, meets all requirements; but on the steep
slopes of the mountains immense cribwork
& deflectors are necessary. The latter are
of two principal types: those that must with-
stand avalanches from one side only, & those
that may be attacked from both. (See figure

5, pg. 265.) An avalanche does not stop at the bottom of the valley, but often sweeps up the opposite side, doing double damage because coming from a direction least expected.

The sheds must accordingly in many instances be made of sufficient strength to withstand avalanches from either direction. Cases are on record where laborers on the tracks have been killed by not heeding an avalanche on the opposite side of the valley, which they supposed was too far below them to be dangerous.

The avalanche itself is not the only destructive agent in these regions. Currents of air are set up by the swift downward motion of the mass, & often do great damage, as they extend over a wide area & have immense power. They are called "snow flurries," & at times have sufficient power to twist off the trunks of full-grown trees, perhaps 50 ft. from the ground, leaving only the stumps standing. After the passage of a "snow flurry" the leaves are burned brown, as though subjected to great heat.

In the construction of the snow-sheds the strongest materials were used, & these were found close at hand in the forests. Cedar timbers, mostly 12 x 12 ins., formed the cribwork, but Douglas fir (Oregon pine) was employed in members subjected to severe transverse strains. The bents, usually spaced about five ft. centers, were built up of 12 x 15 in. timbers, securely braced & drift bolted together. Above the shed the ground is cleaned & leveled, with the object of giving the avalanche an upward motion, thus tending to shoot across the track. An idea may be gotten of the immense power of these avalanches from the fact that comparatively new sheds have been entirely demolished during the breaking up of an unusually severe winter.

In order to guard against destruction by fire systematic measures have been adopted. Where it is necessary to protect a long piece of track from avalanches, the sheds are divided into several short sections, with open spaces of about 200 ft. between them. These open spaces are protected by heavy V-shaped fences of cribwork placed above. (See figures 5 & 6.)

An avalanche striking one of these fences is deflected to the right & left upon the sections of the shed, & so passes, without doing harm, to the valley below. The open spaces also allow the sheds to clear of smoke very rapidly, which in winter, when all the small openings are filled with snow, would otherwise require hours. A complete system of sluices & piping leads water from the streams above to the tops of the sheds, & in case of the occurrence of fire, the watchman, who is always on duty, will be able to control it promptly. In many cases a temporary

track is laid beside the shed, which is used in summer, thus greatly reducing the fire risk, & allowing the passengers to see to better advantage some of the finest scenery.

ravines are crossed, which at first were spanned by wooden trestles, these now being replaced by more permanent structures. The largest of these crosses Stony Creek. It was

originally built of continuous Howe trusses, having spans of 33, 161, 172 & 86 ft. respectively, & supported on wooden trestle towers 200 ft. high, resting on concrete footings. While still in good condition in 1893, it was decided to replace it with steel, a continuous arch of 336 ft. span & 300 ft. above the chasm being completed just before a destructive forest fire swept over the region. (See figure 7, pg. 269.) Several other bridges have been reconstructed in a most substantial way, one of the principal factors in the design being to allow the avalanches of mud & snow to pass safely beneath them. In the old wooden bridges, a few examples of which still remain, the "flurry" caused by the slide passing beneath was withstood by heavy rods of iron anchored to "dead men" on the upper side of the valley. Cribwork to the right & left deflected the side so that it passed between the supports instead of carrying them with it. But even with the most substantial construction & care in design it has not been possible to save some of the bridges from total destruction. The structure spanning Cascade Creek was swept away six times before it was replaced by a single arch of masonry, which, it is expected, will withstand all attacks. It is an interesting fact that this entire stream emerges from the ground a few hundred feet above the line of the railway.

While in many cases it was possible to span the courses of streams by bridges, a number were of such width that long trestlework became necessary. The problem of reconstructing these was a very serious one, owing to the cost of labor & the difficulty of moving material on the steep grades. At certain points, however, it was only possible slowly to fill in an embankment from cars loaded with gravel obtained from cuttings. This method is being pursued in the case of the trestlework at The Loop, where many hundreds of thousands of yards will be required. The operation is necessarily slow, & its completion may not be expected for many years to come.

A much more expeditious & satisfactory method, & at the same time one which costs but about one-half of the dumping method, has been employed in two or three cases where abundant water-power was at hand, & also immense banks of gravel or morainic material. Reversing the methods followed by the goldwashers of California, water was brought down from the streams above under great pressure, & with it the gravel & boulders were washed into large sluices, which carried them to the points where the filling was

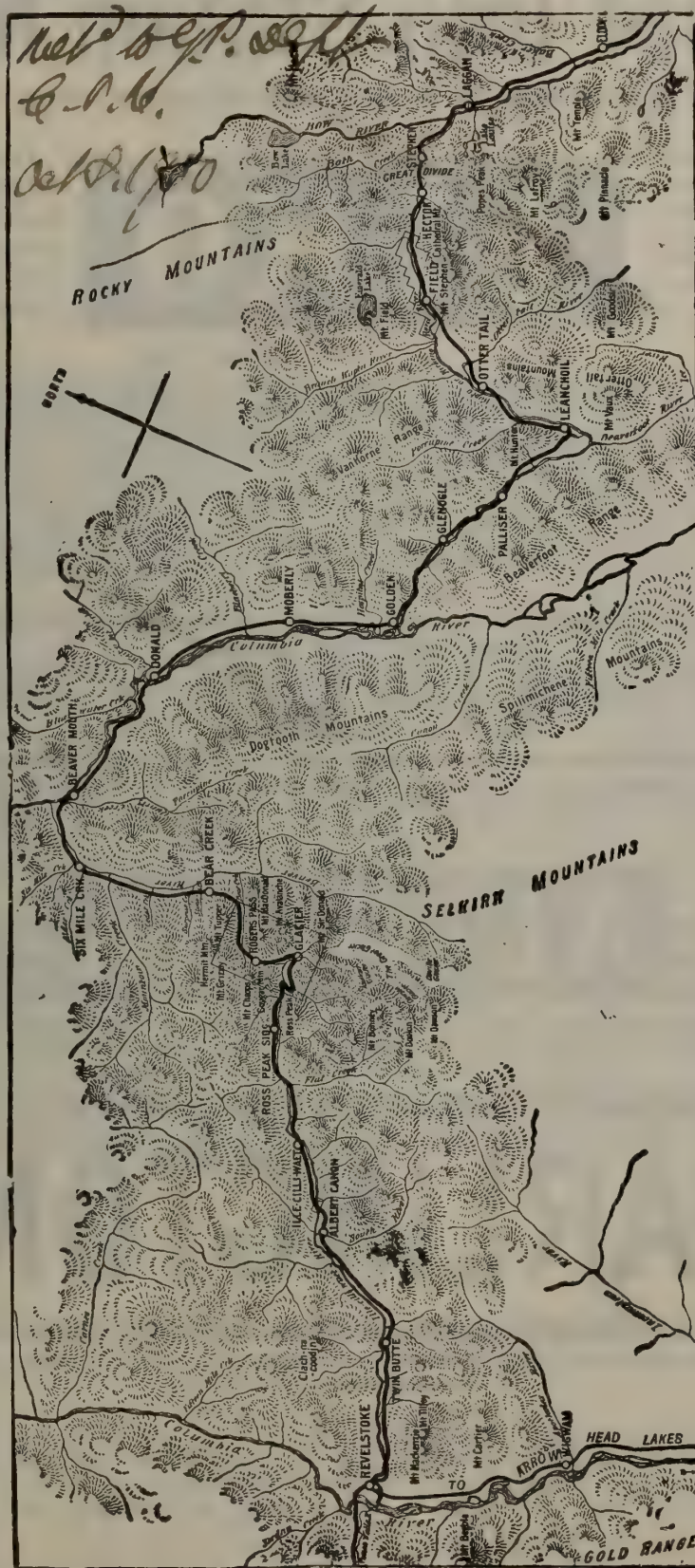


FIGURE 2.—MAP OF THE C.P.R. BETWEEN LAGGAN AND REVELSTOKE, B.C.

Where avalanches cannot be made to pass over the track, bridges are provided, so that they may go beneath them. On the east slope of the Rogers Pass grade several great

down from the streams above under great pressure, & with it the gravel & boulders were washed into large sluices, which carried them to the points where the filling was

The Telegraph News to October.

Enameled Iron Station Names.

Guaranteed not to fade or in any way to perish from exposure.

As used on the Canadian Pacific & Canadian Northern Railways. Sign 12 ins. high. Letters 9 ins. high. Length according to number of letters in name. The sign shown is 45 ins. long.

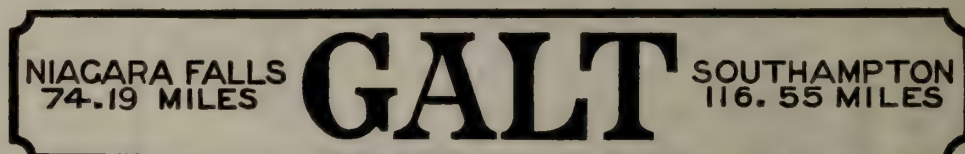


Style no. 1. White letters on blue ground.

Twenty-nine of these signs supplied the C.P.R. Co. for the Crow's Nest Pass Ry. averaged 6½ ft. in length, the longest being 11 ft. 2 ins. & the shortest 3 ft. 9 ins.

Mr. Wm. Whyte, Manager of the Canadian Pacific Railway Co.'s lines west of Fort William, writes,—“I have pleasure in stating that I am very well satisfied with the enameled iron signs supplied by the Acton Burrows Co. for station names on the western lines of this Company. They have now been in use for some time & have proved very satisfactory. The lettering is clear & distinct & the signs have proved to be impervious to the weather. They have a brighter & neater appearance & are very much more satisfactory than painted wooden ones, & considering their lasting qualities will be found more economical.”

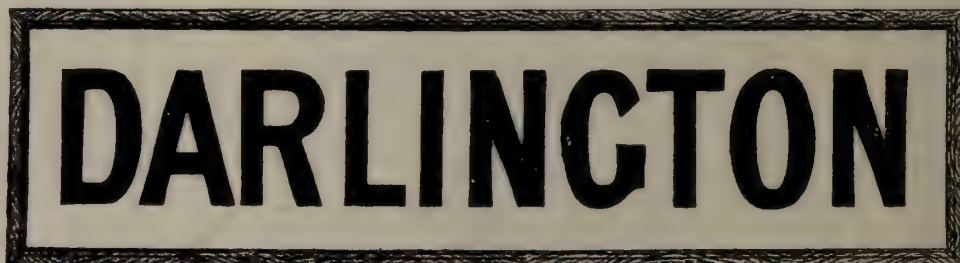
Mr. H. P. Timmerman, General Superintendent of the Atlantic Division of the Canadian Pacific Ry., writes,—“The enameled iron station names supplied by the Acton Burrows Co., in 1898, for a number of stations on this division, have proved very satisfactory. The letters are well formed & distinct, & the signs present a clean, bright appearance, being just as good now as when they were new.”



Style no. 2, as used on the Grand Trunk Ry. System. Black letters on white ground. This sign is 14 ins. high by 7 ft. long. Length varies with number of letters in name of station.



Style no. 3, as used on the Pennsylvania Railroad. White letters on black ground. This sign is 12 ins. high by 6 ft. long. Length varies with number of letters in name of station.



Style no. 4, as used on the Northeastern Railway of England. Dark brown letters on light ground, framed in wood. This sign is 6 x 18 ft.

These signs have long been used on most European railways, & for a number of years on the Pennsylvania R.R., the New York Central & Hudson River R.R., the Manhattan Elevated R.R., the Long Island R.R., & many other lines in the United States. They are also being extensively used in Canada & are giving complete satisfaction as the best outdoor signs produced. They can be made in any color, size, or shape. Estimates promptly furnished on application.

The Acton Burrows Co., 29 Melinda Street, Toronto.

Sole Agents for Canada for The Imperial Enamel Co. of Birmingham, England.

to be done. Here the water was allowed to drain away, leaving the gravel thoroughly settled in the new position. The filling was confined within the proper limits by means of logs laid in rows one above the other, & thus the embankment rose, tier above tier, the slope being kept well within the angle of repose, & the logs soon sprouting & forming a network of roots, firmly binding the mass together.

Mountain Creek is the point at which a large amount of filling has been done on this plan in a most successful & economic way. Water is obtained from the creek some 2 miles above, & is led down in a flume, 2 ft. high & 4 ft. broad, to the flume-box, which is 206 ft. above the railway track. From this point an iron pipe 14 ins. in diameter, of $\frac{3}{8}$ -in. thick metal, leads the water to the monitor, which is provided with nozzles ranging from 3 ins. to 6 ins. in diameter. The small-sized nozzles are used for breaking up the mass of gravel, while the

be taken up in order to prevent wreckage by the avalanches, & so each spring the work must practically be constructed again. Nine men in all are required to conduct the filling; 1 at the monitor, 2 to keep the sluices clear, & 6 to prepare & lay the logs at the edge of the filling & to level off the material as it falls. The total filling at this point will aggregate 300,000 cubic yards, of which 225,000 were put in place between June, 1897, & June, 1899, leaving but 75,000 yet to be filled.* A light steel trestle will complete the work connecting the two fillings, thus effecting a permanent solution of a very difficult problem. This method of hydraulic filling was first employed in the mountain division of the C.P.R. under the direction of Superintendent E. J. Duchesnay, C.E. It is a pity that this method cannot be employed to advantage in many other localities where great fillings are necessary.

The highest point reached by the railway in the Selkirk range is at Selkirk Summit, 4,

used in the Selkirks (see figure 1); but the snowfall being lighter, the same difficulties do not have to be encountered. Some very heavy tunneling & cutting were required in the valleys of the Thompson & Fraser Rivers, a good part of which was constructed by the Government in the early days of the development of the country.

Thus the Rocky Mountain system is crossed after passing three summits, which, if their altitude is not great, still in location & construction required the greatest patience & skill on the part of the engineers intrusted with the task.

* Since the above was written the hydraulic fill at Mountain Creek has been completed, & the balance of the fill will be done by steam shovel, as it cannot be reached by sluice boxes. The centre or main steel span over the stream was erected last year, & two more steel spans adjoining it will be erected this



FIGURE 3.- SNOW-CUTTING ON THE C.P.R. IN KICKING HORSE PASS, BRITISH COLUMBIA. (SEE PAGE 258.)

larger ones furnish an increased volume of water to flush the sluices. Boulders 18 ins. in diameter are readily moved without assistance, but two men with hooks are constantly on the lookout to clear any obstructions. The sluice has a grade of about 1 in 10, conveys the material beneath the railroad track & deposits it in a great pile at the center of the area being filled. (See figure 8.) From this point it is gradually washed down until stopped by the row of logs at the edge, which, however, allow the water to flow off freely. The sides are made to slope at an angle of $37^{\circ}40'$, which is well within the angle of repose, but, in addition to this, the sprouting of the logs at the edge of the filling has formed a strong network of roots, binding the whole mass firmly together. (See figures 8 & 9.)

The cost of this filling is about one-half that of the ordinary way, but it is here carried on under great disadvantages. Not only must the work be entirely suspended between Oct. & June, but the sluices & fixtures must

303 ft. above tide. From this point the railway steadily descends, following the Illecillewaet River. The first routes surveyed lay on the slopes of Mt. Cheops, to the right; but these necessitating a steeper grade than the Government would allow, a change was made to the left side, & the length was increased by a great sweep up the valley of the Illecillewaet to within a mile & a half of the Great Glacier of the Selkirks. Then, following the slopes of Mt. Abbott, & executing a double loop like a letter S, the level of the stream was reached, which was followed as far as its junction with the Columbia River at Revelstoke. This is a divisional point on the railway, & the crews & engines are changed. The pass over the Gold range is not high, & offers very little of special interest, while in crossing the Coast range the railway follows the canyons of the Frazer & Thompson Rivers, thus avoiding a summit. A few sheds are necessary on the western slope of the Gold range, of similar construction to those

fall. The remaining two spans are expected to be replaced early next spring.

The foregoing paper was read before the Engineers' Club of Philadelphia, to whose officers we are indebted for the use of several of the illustrations.

Why Not Borrow a Hand Car?

The following unique advertisement appeared recently in a St. John, N.B., paper:—

Hampton & St. Martin's Ry. Co.

On & after Tuesday, Aug. 28, 1900, train on the above railway will be cancelled until further notice, on account of some repairs being made to engine.

E. G. EVANS,
Superintendent.

The Columbia & Western Railway.

In our last issue we gave the report on the first section of this line, from West Robson to Greenwood, by H. B. Smith, C.E., who inspected it on behalf of the B. C. Government. Following are extracts from his report on the second section, from Grand Forks to Greenwood, up to Nov. 22, 1899, which has only just been made public:—

The Grand Forks-Greenwood division of the C. & W. Ry., is an indirect extension westward of the Rossland-Trail, Trail-West Robson, & West Robson-Grand Forks divisions of the same railway. Beginning at Grand Forks, 1,700 ft. above sea level, at the junction of the North Fork of Kettle River with Kettle River, & distant from West Robson 67 miles, it extends along the west slope of the valley of the North Fork of Kettle River, northerly to Niagara, a small town 2,230 ft. above sea level, & 72.7 miles from West Robson. From Niagara it continues directly north to Brown's Creek, a small tributary of the North Fork of Kettle River, 79 miles from West Robson. At Brown's Creek the railway deflects almost due west, & continues on that course to Eholt, a mining settlement on the summit between the North Fork of Kettle River & Boundary Creek. Eholt is distant from West Robson 80.8 miles, & is 3,080 ft. above sea level. At Eholt a branch railway, $4\frac{1}{2}$ miles long, proceeds to the B. C. mine, & another, $9\frac{1}{2}$ miles long, to Phoenix. From Eholt the course of the railway is south-westerly along the banks of Eholt & Attwood Creeks to Boundary Creek, 2,500 ft. above sea level, & 88.4 miles from West Robson. Here the course deflects almost due south, & continues in that direction to Greenwood, a mining town on the east bank of Boundary Creek, 2,450 ft. above sea level, & 89.7 miles from

West Robson. Greenwood lies north westerly from Grand Forks, & is distant from it in an air line $12\frac{3}{4}$ miles. By the railway the distance is 22.7 miles. Between Grand Forks, at mile 67 & mile 77, the country passed over is a very irregular rocky side-hill, not precipitous, but broken into scattered elevations & depressions. Between mile 77 & Eholt, at mile 80.7, the railway passes over earth flats & side-hills. Between Eholt & Greenwood, at mile 89.7, the country traversed is fairly level, consisting chiefly of earth flats, bogs, & gravel side-hills. It is proposed to construct a branch, $2\frac{1}{2}$ miles long, from Grand Forks northerly to the Granby Smelting Co.'s smelter, & from Greenwood a branch, 5 miles long, is being constructed westerly to the Deadwood Mining Camp.

Considerable skill has been displayed in the choice of alignment, & the result obtained has proved satisfactory so far as economical construction is concerned. It would appear to be possible, & even necessary, to dispense with many existing curves without adding excessive additional cost. The total amount of curves is 53.5% of the whole alignment, whereas the total amount of tangents is 46.5% of the whole alignment. This is not good railway practice, & a change is desirable. Trestling has been skilfully avoided, & all flats affording suitable grades have been taken advantage of.

On all tangents & curves not exceeding 4° , or 1,433 ft. radius, the gauge is standard, the rails being placed 4 ft. 8 $\frac{1}{2}$ in. apart from inside to inside of rail head. On curves sharper than 4° an additional width or spread, varying with the degree of curvature, has been allowed, in order to prevent the binding of car wheels in passing over them. The additional spread is as follows:—

4 degrees to 6 degrees, $\frac{1}{8}$ of an inch.
6 " " 8 " " " " " "

8 degrees to 10 degrees, $\frac{3}{8}$ of an inch.
10 " " 14 " " " " " "

Curves vary from 40° to 14° , or from 8,594 to 410 ft. radius. These curves are light in mountain railway construction, and in this respect the curvature is not excessive. The total amount of curvature, however, as shown by the subjoined table, is unusually large, and does not appear to be warranted by the physical features of the country traversed:

Degree.	Radius in feet.	No.	Length in feet.
0 to 1	8,594	1	1,561.7
1 " 2	5,730	2	1,166.6
2 " 3	2,865	7	5,771.3
3 " 4	1,910	13	10,491.9
4 " 5	1,433	12	7,627.2
5 " 6	1,146	11	6,003.7
6 " 7	955.4	8	4,944.2
7 " 8	819	5	3,922.7
8 " 9	716.8	11	4,349.8
9 " 10	637.3	2	674.8
10 " 11	573.7	17	6,934.4
11 " 12	521.7	4	1,699.3
12 " 13	478.3	11	4,931.3
13 " 14	441.7	0	
14 " 15	410.3	14	5,588.2
Totals.		118	64,957.1

The total length of the railway from the center of Grand Forks siding to the centre of Greenwood siding is 121,068 ft. The combined length of curves, as shown by the preceding table, is 64,957 ft. The combined length of tangents is, therefore, 56,111 ft. Hence, as before stated, the total curvature is very nearly 53.5% of the whole length of the railway. The curves of most frequent occurrence are from 10° to 11° . The curves of least frequent occurrence are from 40 minutes to 1° . The longest curve is a $3\frac{1}{2}^\circ$ degrees, 1,646.2 ft. long; the shortest is a 4° degrees, 100 ft. long. The longest tangent is 5,707.3 ft. in length, and the shortest, 100.9 ft. in length.

From Grand Forks, mile 67, to mile 68, grades are light, varying from level to 0.525

The Northey Gasoline Engine with Triplex Pump, for

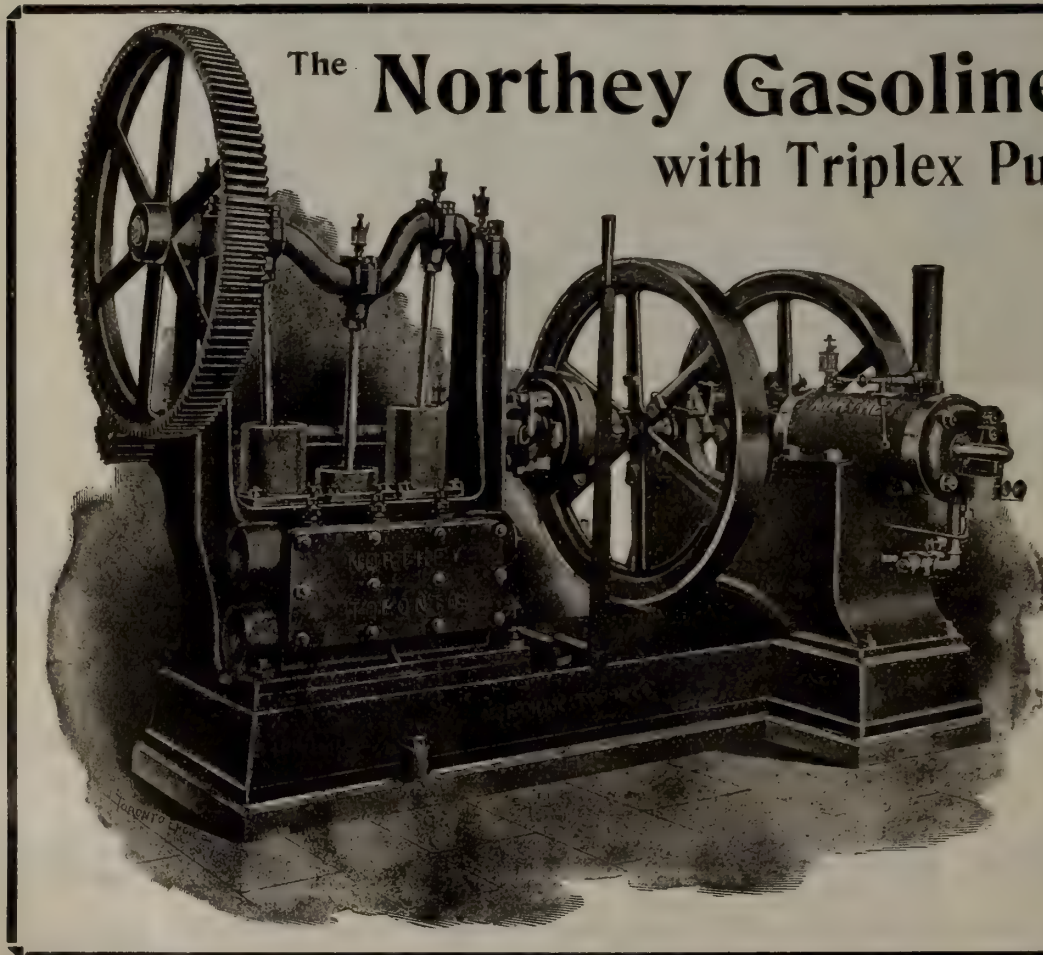
TANK and FIRE DUTIES.

We here illustrate a complete, space saving pumping plant, including the Northey Triplex Power Pump and Gasoline Engine. This arrangement is admirably adapted for prompt service, as the engine is ready for work at a moment's notice, can be run by any one, and will operate for hours without attention.

The Triplex style of pump with cranks placed 120 degrees apart gives a practically constant flow of water. Both machines are strongly built, and have an ample margin of strength for heavy continuous duty. We have recently installed two such plants at Coteau Junction for the Grand Trunk and Canada Atlantic Railways, and are now filling a large order for the Canadian Northern Railway.

Booklet and Catalogues on request.

The Northey Co., Limited,
1032 King St. Subway,
TORONTO, CANADA



per 100. At mile 68, a uniform 2.2 per 100 upward grade, compensated for curvature, begins and continues, without interruption, to Eholt summit, mile 80.8. At Eholt the grade is level for 1200 ft. At mile 81 a uniform 1.8 per 100 downward grade begins and continues to mile 84.9. From mile 85.9 to mile 85 grades fall, varying from .07 to .55 per 100. From mile 85 to mile 85.7 grades fall, varying from 1.10 to 1.20 per 100. From mile 85.7 to mile 88.4 grades fall 1.8 per 100, compensated for curvature. From mile 85.7 to Greenwood, at mile 89.7, grades fall, varying from 1.70 to 1.43 per 100.

All grades exceeding 1.5 per 100 are compensated for curvature at the rate of 3/100 of a foot in each 100 ft, for each degree of curvature, that is to say, that in the case of a 14° curve having a tangential grade of 1.8 per 100, the grade on the curve is reduced 42/100 of a foot, which subtracted from the

structed, having full formation widths and height.

Excavations are 18 ft. wide at formation level, with side slopes of 1 to 1 in earth, sand & gravel, and ¼ to 1 in solid rock. In certain cases where the nature of the material admitted slopes have been vertical, or nearly so. As in the case of embankments all excavations have originally been thoroughly finished. In rock excavations all work, as a rule, has been well done, the faces of the excavations presenting uniform surfaces.

Rock slope walls occur at two points about midway between Grand Forks and Eholt, each wall being about 59 ft. long and 15 ft. high. They are merely dry stone walls, vertical on the inside face, and battering outwards 1 in 3 on the outside face. They are substantially built, the stones being rectangular blocks, breaking joint and in every way well laid. The top width is not less than 3 ft., and the inside filling is broken rock. In

surfaces approach very closely to the required symmetrical specifications, which are as follows: Width at formation level and at spring of roof, 16 ft.; clear centre height above formation level, 23 ft. 2¼ ins., and above rail level, 21 ft. 6 ins., ballast being 9 ins. deep. The rock through which the tunnels pass is solid, and no timbering has been required. The tunnel at mile 74.3 is 402 ft. long from portal to portal. The approaches are rock excavations; that on the north end being 120 ft. long, and that on the south end 100 ft. long. The grade through the tunnel is 1.80 per 100, rising northward, and the alignment is a 10° curve. The tunnel at mile 77.2 is 511 ft. long from portal to portal. The approaches are rock excavations, that on the north end being 110 ft. long, and that on the south end 150 ft. long. The grade through the tunnel is 1.80 per 100, rising north, and the alignment is a 10° curve. In both tunnels the centre lines have been

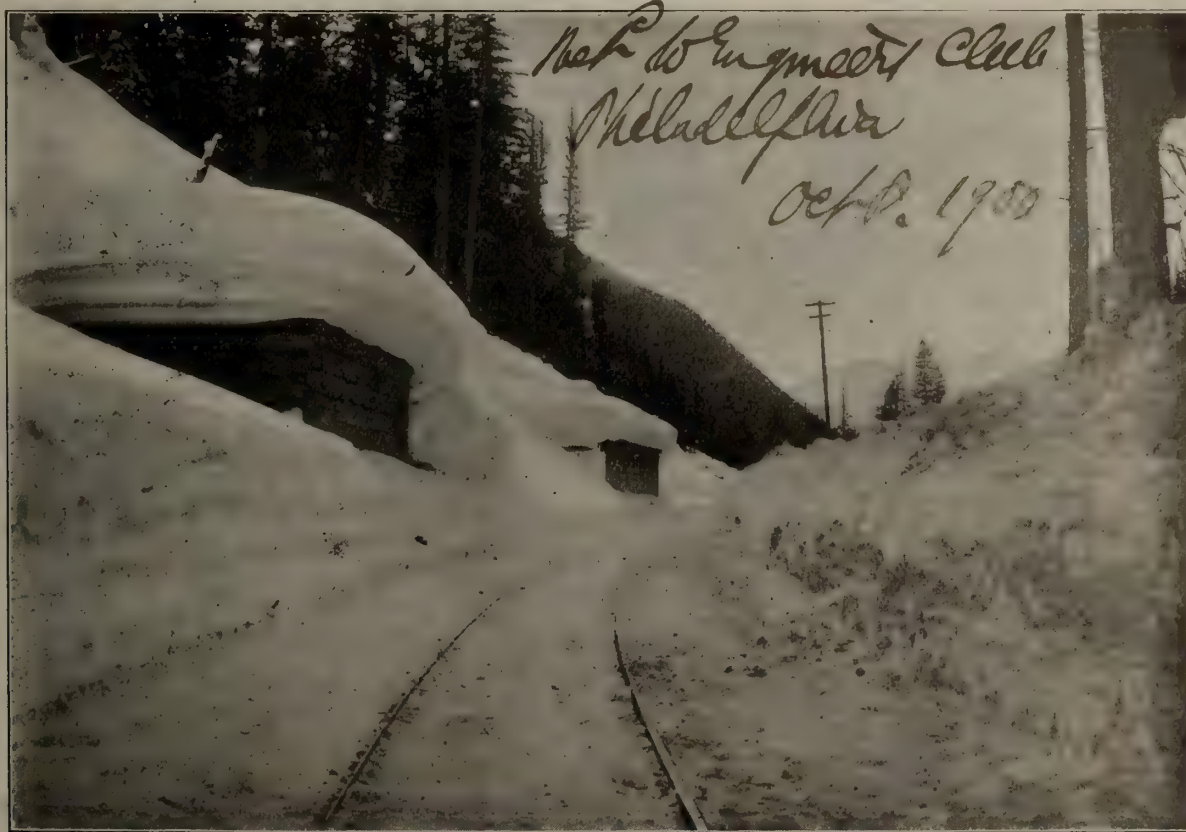


FIGURE 4.—A SNOW-CUT SHOWING DEPTH OF SNOW ON THE C. P. R., IN THE SELKIRK MOUNTAINS, B. C. (SEE PAGE 258.)

original grade of 1.8 per 100, leaves 1.38 per 100 as the compensated grade on the curve. This rule has been adhered to very closely, but in cases where changes of alignment during construction have altered distances, slight deviations have been rendered necessary.

The total ascent from Grand Forks to Eholt summit is 1,380 ft., and the total descent from Eholt summit to Greenwood is 630 ft. The average grade from the middle of Grand Forks siding upwards to Eholt summit is 1.9 per 100, and the average grade from Eholt summit downwards to the middle of Greenwood siding is 1.38 per 100.

Embankments are 14 ft. wide at formation level, having the usual slopes of 1½ to 1 in earth, sand & gravel, and 2 to 1 in loose rock. With the exception of two cases, where dry stone retaining-walls are constructed, the toes of all slopes reach solid ground. No retaining timber crib-work has been used. All embankments have originally been well con-

structed, having full formation widths and height. The stability of the road-bed does not depend on these walls, there being a sufficient width of rock excavation to sustain the road-bed, even should the walls be removed.

Drainage under the road-bed has been excellently well provided for by means of culverts. Surface drainage, by means of ballast boxes, is still lacking. Side drainage, by means of catch-water drains, is unusually plentiful, and many of these appear to be unnecessary. All culverts are of the usual log pattern, having solid cedar or fir walls and covering, secured by tree-nails and drift bolts, the whole resting on round sills, in pairs, from 5 to 8 ft. apart, the spaces between the sills being filled flush with solid rock. The workmanship on these structures is excellent.

Two rock spurs have been pierced by tunnels, one at mile 74.3 and one at mile 77.2. Both tunnels are excellently well constructed, and present uniform clear-cut surfaces. The

placed 7 ins. off the centre line of the road-bed, in order to allow for the inclination of the cars, due to the elevation of the outer rail of the curve.

From Grand Forks to Greenwood there are, including bridge approaches, 6 framed timber trestles, which, combined, cover a distance of 1,610 ft. Following is a list of trestles:

Location.	No. of bents.	Total length.	Centre height.
Mile 68.1	2	45'	7'
" 70.2	16	256'	30'
" 70.3	16	256'	30'
" 73	27	421'	102'
" 89.4	34	526'	70'
" 89.4	6	106'	65'

Trestle at mile 58 is temporary, and, it is stated, will be filled at an early date. Trestle at mile 70.2 is on a tangent, with a grade rising north 2.2 per 100. It is built across a rock ravine, and has solid rock foundations. Trestle at mile 70.3 has two decks, and is on a 7 degree curve, with a grade rising north 1.92 per 100. It is also built across a rock

ravine, and has solid rock foundations. Trestle at mile 73 has three decks, and is on a 10°-curve, with grade rising north 1.80 per 100. It is built across Fisherman Creek, and has solid rock foundations. Both trestles at mile 89.4 are the approaches to a bridge across Boundary Creek. Both have two decks. The first is on a 4°-curve, and the second is on a 10°-curve. Both are on a grade rising westward 1.43 per 100. Both rests on pile foundations. All trestles are excellently designed and well built, strength, rigidity and durability having been obtained.

All trestle foundations, except those of Boundary Creek, being on solid rock ledges, are of the most secure character. If driven according to specification, the pile foundation at Boundary Creek must be of a reliable nature, so long as the upper part of the pile, exposed to atmospheric action, does not decay. The specification for pile-driving required that all piles should be driven with a 2,000 lbs hammer, having a free fall of 20 ft. for the end blow, maximum penetration under the last 5 blows not to exceed 5 ins. One pile is directly under each post of the trestle.

All bents are 15 ft. apart, centre to centre. Caps are 12 ins. by 12 ins. by 14 ft., & are secured to posts by $\frac{3}{4}$ -in. drift bolts, 21 ins. long. In single deck trestles there are 2 vertical posts & 2 raking posts, each 12 by 12 ins. Sway braces & wales are 3 by 10 ins., & are bolted at the ends through posts by $\frac{3}{4}$ by 18½-in. screw bolts, & spiked to intermediate posts by $\frac{1}{2}$ by 7-in. boat spikes. Longitudinals, 8 by 10 ins., are placed above wales & sills, & are secured at the ends by $\frac{3}{4}$ -in. screw bolts, 21½ ins. long. In 2-deck trestles the same design & scantling of timber are retained. The sill of the upper deck is separated from the cap of the lower deck by 8 longitudinals, 8 by 12 ins. Connecting the lower half of each deck are four longitudinal diagonal braces, 6 by 10 ins. In 3-deck trestles the same design & dimensions are retained. The number of posts is increased as follows:—Upper deck, 2 uprights & 2 raking posts; second deck, 2 uprights & 4 raking posts; third deck, 2 uprights & 4 raking posts. All substructures are fully completed.

The trestle superstructure will be unusually strong. There are 8 stringers of Douglas fir, 8 by 16 ins. by 30 ft., breaking joint, & bolted together by $\frac{3}{4}$ -in. screw bolts, 25½ ins. long. Ties are 8 by 8 ins. by 12 ft., spaced 4 ins. apart, & spiked to stringers by boat spikes, $\frac{1}{2}$ by 12 ins. Guard rails are double, the outside rail is 8 by 8 ins., bolted

to every fourth tie by $\frac{3}{4}$ -in. screw bolts, 18½ ins. long. The inside rail is parallel to the outside rail, except for 20 ft. at the ends, where it flares outwards to a junction with the outside rail. It is secured to the ties at intervals of 3 ft. by means of lag screws, $\frac{5}{8}$ by 8 ins. On curves, the superstructure is cantled to the required elevation by increasing the length of the outside posts of the superstructure. All washers are of cast iron, $\frac{5}{8}$ by 3 by 1½ ins.

Between Grand Forks & Greenwood only one bridge span has been found necessary. This is at the crossing of Boundary Creek, 89.4 miles from West Robson. It is a timber Howe truss deck span of 150 ft., supported on framed timber abutments, each of which consists of 24, 12 by 12 ins., vertical & battering posts resting on 12-ins. piles, enclosed in a rock-filled caisson. Rail level is about 75 ft. above river level. The centre alignment is a 4° curve, & the grade 1.43 per 100. The approaches to the bridge have been enumerated & described under the head of trestles. The length of the north approach, 526 ft., does not appear to be necessary, except as a means of saving embankments & expediting the period of opening the road to traffic.

Ties are of cedar, hemlock, tamarac & fir, both hewn & sawn. They are laid 24 ins. from centre to centre. Faces are from 7 to 8 ins. in width, & the thickness uniformly 7 ins.

The alignment of the rail has apparently been at one time as well done as the character of the rails used would admit of. The sagging of embankments, both vertically & laterally, & the settlement of side ballast, have caused irregularities of contour in many places. Surface-men, however, are now at work remedying these defects. All curves have been eased off at both ends, & the outer rails elevated for velocities varying according to the retardation of the curve, & the particular grade on which the curve is situated. Rails break joint, & are double spiked to each tie.

From Grand Forks, mile 67 to mile 68, rails are 56 lbs. steel, which have been used on other parts of the C.P.R. From mile 68 to Eholt, mile 80.8, rails are new 73 lbs. steel, of a pattern designed by the C.P.R. From Eholt, mile 80.8, to Greenwood, mile 89.7, rails are 72 lbs. steel, which have been used on other parts of the C.P.R. The 56 lbs. rails are provided with 4-hole angle plates, pierced for $\frac{3}{4}$ by $3\frac{3}{4}$ in. bolts. The 72 lbs. rails are provided with 6-hole angle plates, 42 in. long, pierced for $\frac{7}{8}$ by 4 in. bolts. The 73 lbs. rails are provided with 4-hole angle plates, pierced for $\frac{7}{8}$ by 4 in. bolts. All nuts are hexagonal; lock washers are positive & national.

A double-wire telegraph has been constructed from Grand Forks to Greenwood. Poles are 25 ft. long, 8 ins. diameter at the top, & from 150 to 200 ft. apart. This work has been well done.

All timber, for 50 ft. on each side of the railway, has been felled. Side tracks from 1,500 to 4,500 ft. long, & aggregating 13,000 ft., have been built. Y's for reversing engines have been constructed at Grand Forks, Eholt & Greenwood. Permanent water tanks of 10,000 galls capacity each have been erected at four points. Several station & section houses have been built.

The Grand Forks-Greenwood division has been easy of construction as compared with the West Robson-Grand Forks division. The first 9 miles north of Grand Forks cover the whole of the heavy work; beyond this point the works are comparatively light.

A map of the C. & W. R. was given in our last issue, pg. 227.

Altering St. Louis Station.—The main hall of the union passenger station at St. Louis, Mo., one of the finest rooms of the kind in America, is going to be altered, experience having shown that passengers do not use it. The large room beneath it, which is nearer the street level & the train platform level, & which contains the ticket offices, is used by the great majority of passengers of all classes, & the main floor is nearly always practically empty. An opening is to be made in the floor, in the centre of the room, & a handsome balustrade put in; so that the ceiling of the main hall will become the ceiling of the lower hall, & the main floor, what is left of it, will become a gallery.

St. Lawrence Terminal & Steamship Co.—The Dominion Parliament last session incorporated a company under this name, with power to construct & operate vessels, elevators, wharves, warehouses & other terminal facilities, also to construct & operate railway sidings or spur lines not exceeding 6 miles in length, to connect the Co.'s property with any railway line incorporated by the Dominion Parliament. The incorporators are H. A. Hodge & F. D. White, Rutland, Vt.; G. C. Dessaulles, St. Hyacinthe, Que., & G. H. Semple, Montreal. The capital stock is \$1,000,000. We are informed that matters of detail have been perfected, but that actual operation under the charter cannot be begun until certain improvements have been made at the port of Sorel.

F. B. POLSON

J. B. MILLER

The POLSON IRON WORKS

TORONTO, - - CANADA.

STEEL BOILERS

The Best Equipped Boiler and Engine Works

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We Manufacture

The Brown Automatic Engine
Single, Compound and Triple Marine Engines
Hoisting and Mining Engines
Steel Steam Vessels of every description
Steam Yachts and Launches

..... Get Our Prices Before Ordering.

Esplanade East, Foot of Sherbourne Street, -:- TORONTO.

The C.P.R. & the I.C.R.

The following correspondence between the President of the C.P.R. & the Minister of Railways has been made public:—

MR. SHAUGHNESSY TO MR. BLAIR, SEP. 3, 1900.

"Within the next month it will be necessary for this Co. to determine the route by which its export & import traffic will be handled during the coming winter. It is the sincere wish of the Co. to see the business of every Canadian port increase & multiply, to the greatest possible extent, & I think it is necessary for me to say that in co-operation to this end we would not be narrow or niggardly.

"For several years past we have made St. John, N.B., our winter port, & have kept it on an equal footing with the other ports, by

port to the extent & in the manner that we would like.

"Therefore, in the hope of holding the traffic to Canadian seaports, I beg to inquire if the Government is prepared, during the season of winter navigation, to accept from us at Jacques Cartier Jct. (Montreal) such export business as we may be able to control, & to deliver to us at the same junction all import business which the Government is free to so direct, on the basis of the existing traffic agreements between the Government & the G.T.R. Co.

"Such an arrangement would practically secure to the I.C.R. for Canadian seaports all the Canadian export & import traffic, excepting that taken to Portland by the G.T.R.

"With the I.C.R. terminus at Halifax & the elevator & other facilities provided by the

your agreement with the G.T.R., the division of the rates to be on the same basis as your G.T.R. agreement, known as the supplementary agreement.

"In making this proposition, & refraining from the use of its shortest available connections with the Atlantic seaboard for this traffic, a use which could be made to afford to this Company a considerable profit east of Montreal, we feel that we are proposing a sacrifice which should not be necessary, but we do not intend to leave in the mind of anybody the least doubt as to how far this Co. is willing to go towards the conservation of the commercial interests of Canada.

"During the past two years we have made every effort to secure a settlement of these traffic questions with the I.C.R., but without success.

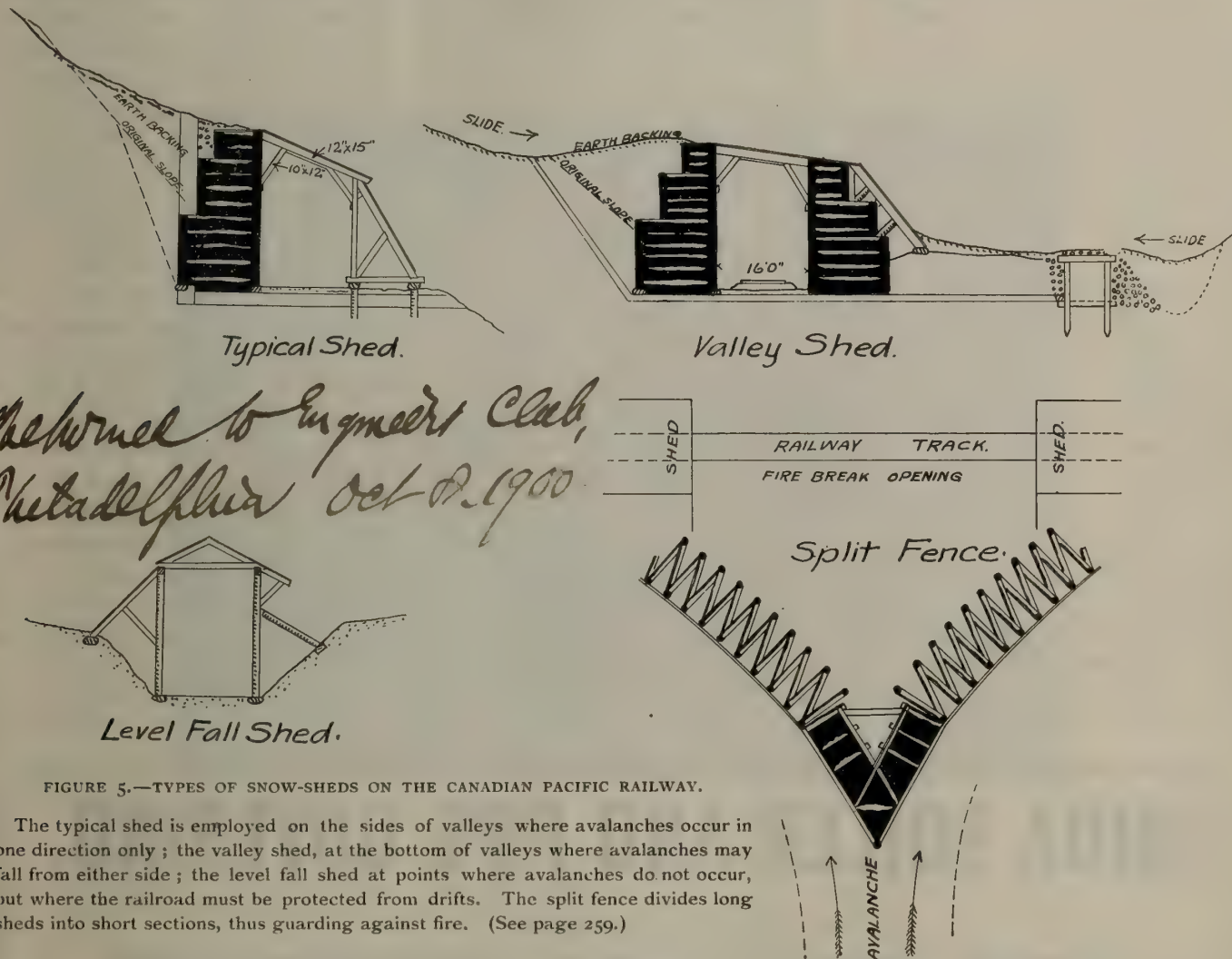


FIGURE 5.—TYPES OF SNOW-SHEDS ON THE CANADIAN PACIFIC RAILWAY.

The typical shed is employed on the sides of valleys where avalanches occur in one direction only; the valley shed, at the bottom of valleys where avalanches may fall from either side; the level fall shed at points where avalanches do not occur, but where the railroad must be protected from drifts. The split fence divides long sheds into short sections, thus guarding against fire. (See page 259.)

meeting the rail rates quoted to Boston & Portland on export traffic, notwithstanding the greater distance, the great preponderance of export over import tonnage & other unfavorable conditions with which we had to contend, & we have been so successful in securing traffic that during last winter we loaded 63 steamships at that port with more than 200,000 tons of export freight, & this amount could have been nearly or quite doubled under more favorable conditions.

"The altered relations between the Government Railway System & this Co., resulting from the refusal of the Government to deliver to us at St. John any business originating on the Government Railway System east of St. John & destined to points on our line & its connections, Montreal & west, make it quite impossible for us to continue to use that

Government at St. John recently, the Government will be in a position to route the export business through either of these ports, or to divide it between them as may appear best. In case the terminal facilities of the I.C.R. at either port be overcrowded, we shall be glad to give the Government the use of our elevator, yards & terminals at West St. John to the extent that may be required for this steamship business, for a nominal consideration.

"If you be willing to enter into such an agreement, we shall solicit & secure traffic & hand it to the Intercolonial at Jacques Cartier Jct. (Montreal) for carriage to either St. John or Halifax. The same rates will be quoted from all points to St. John as those in force at the same time to Portland or Boston on the same classes of business, & the Halifax rates will be 1c. per 100 lbs. higher, as specified in

"As I explained in the early part of my letter, the time is now upon us when an agreement for ocean traffic for the coming winter must be closed, & it is most important, if not necessary, that the subject of this letter be settled one way or the other before the 19th inst. May I not, therefore, hope for an answer during the present week, indicating the disposition of the Government?"

MR. SHAUGHNESSY TO MR. BLAIR, SEP. 18.

"September 3rd I wrote you on the subject of an interchange of import & export traffic between this Co. & the I.C.R., requesting an early reply because of the lateness of the season, but up to this time I have not been favored with an answer. Your silence can hardly be held to indicate a determination on the part of the Government not to open the I.C.R.

as an export route to St. John & Halifax, in view of the vast expenditure made by the Government during the last couple of years in providing steamship terminals for the I.C.R. at St. John.

"It cannot be that the division of rates is an obstacle, unless it be admitted that your agreement with the G.T.R. Co. was unfair to the I.C.R., because the divisions proposed in my letter are precisely the same as those specified in that agreement, as approved by Parliament, & we are convinced that there is no disposition on the part of the Government to discriminate between railway companies or individuals in the charges for the carriage of the same classes of traffic between the same points on the I.C.R.

"Clearly, then, we have the right to expect—indeed if we were dealing with a private railway corporation, instead of the Government, we would have the right to insist—that in the interchange of traffic we shall be given the same terms as are given to any other company routing traffic over the line between Montreal & St. John or Halifax.

"Taking it for granted, therefore, that the I.C.R. will accept in the division of the rates the proportions specified in the G.T.R. agreement, viz., 375 miles on St. John & 425 miles on Halifax as its compensation in full for the carriage of import & export traffic, between Jacques Cartier Jct. (Montreal) & those points, we shall regulate our winter business accordingly.

"The steamship companies that have heretofore made St. John their winter terminus will, within the next couple of weeks, desire to renew arrangements for the coming season. We shall refer them to the officials of the I.C.R., & I have no doubt that you will give such instructions as will ensure a regular ocean service to Liverpool, London, Glasgow, Belfast, Dublin, & Manchester from the time navigation closes in the St. Lawrence until it opens in the spring.

"In order that the port of St. John may not be prejudiced, & the steamship lines embarrassed, a prompt & satisfactory train service will be required. I am sure that we may rely on the I.C.R. officers to see that the export traffic controlled by this Co., which we intend to hand to the I.C.R. at Jacques Cartier Junction, during the coming season, will be moved to the steamer's side with regularity and despatch. In return, we promise that all import traffic delivered to this company, as mentioned in my letter of Sept. 3rd. will be trans-

ported over our line to the satisfaction of everybody concerned."

MR. BLAIR TO MR. SHAUGHNESSY, SEP. 18.

"I have been unavoidably delayed in acknowledging & replying to your favor of the 3rd inst., with reference to the transfer of your export traffic to the I.C.R. at Montreal, & I have only just now concluded my conferences with my officers & the General Manager. The proposition you make, as I understand it, to deliver to us at Jacques Cartier Jct. the traffic you have been heretofore carrying to St. John for export, is one which with some minor modifications I am bound to say has much to commend it to favorable consideration. The arrangement of details to ensure a satisfactory working agreement & the necessary preparations which the I.C.R. would have to make to enable it handle so large an additional traffic, would require time to adjust & provide for. Your suggestion that I should let you know inside of 12 or 15 days whether the I.C.R. is or is not prepared to enter into a binding agreement with you to take care of this traffic during the approaching winter you must, on consideration from the standpoint of the Intercolonial, see does not afford adequate time in which to complete the negotiations necessary before such a contract could be concluded. The volume of your traffic last year eastbound for export aggregated some 200,000 tons. To add such an enormous business to the normal traffic of the I.C.R. would involve the settlement of many details. Let me enumerate these:

"First, your suggestion is based upon the condition that we should make with your Co. an arrangement on the basis of that existing between the G.T.R. & the I.C.R. for export traffic. This would be satisfactory if you make the conditions identical, or nearly so, & in order that we may be on as good a footing in a financial sense carrying your merchandise as we are with respect to any we may receive from the Grand Trunk, we would require you to deliver to us at Ste. Rosalie, rather than at Jacques Cartier Jct. This is a minor detail, however, which we could, I have no doubt, after discussion, arrange between us.

"Second, our facilities at St. John, which are approaching completion, & which will be ready for winter business, would be quite insufficient to handle anything like the large volume of business you propose to turn over to us. As a consequence, we would

have to discuss with you, & also with the bridge company, the terms upon which we could utilize your works on the west side of the harbor, & the bridge and tracks. Upon the assumption that you are retiring from the export business at St. John this ought to be practicable, but some necessary arrangements would require to be made for taking over, either temporarily or permanently, your west side facilities, with the Carleton bridge & connecting tracks, & in this relation I presume the corporation of St. John would be entitled to have a say as to the property which they have constructed & placed at your disposal, & following the results of our arrangement, parliamentary action would have to be had to enable us to legalize & effectuate such agreement as we might make.

"Third, as a sub-question, & perhaps involved in the above, the terms upon which the use of the bridge could be acquired is a matter of importance. The charges now made for crossing the bridge by the bridge company, & the charges of the miles of track which we would have to use to reach the west side terminals, would involve to the I.C.R. an additional cost, as against east side shipments of over \$1 a ton. This is an expense which your Co. avoids, as you are not under the necessity of crossing the bridge, & \$1 a ton taken off the rate which you propose to us would be a very considerable item, & would necessitate our endeavoring to secure the bridge upon terms entirely different from any which the bridge company has heretofore been willing to concede.

"Fourth, the C.P.R. has reached its present capacity for handling the considerable tonnage which you were able to take care of last winter as the result of years of organized work, & is the growth of time. To cast upon the I.C.R. the responsibility of handling 200,000 tons of additional freight beyond its ordinary business during the approaching winter, & to do which you would bind us to undertake in a manner satisfactory to shippers, is such a large problem that months would be required of vigorous preparation to justify us in assuming it. Our present locomotive & car equipment is really not sufficient to handle the ordinary business which now comes to us, & I have been making strenuous efforts to increase our capacity for the purpose of this normal business. I have had no parliamentary authority to incur expense this year to make up such a burden as you would suggest we might assume. I quite understand

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that in the matter of cars you would no doubt be willing to furnish these on the usual car mileage terms, but we would require a number of additional locomotives, besides securing sufficient & organized staff to handle business.

"Fifth, there would still remain the making & concluding of arrangements with shipping companies for the ocean transport of this traffic, & you would realize as fully as the traffic officers of the I.C.R. do, the impossibility of effecting such arrangement on 12 or 15 days' notice.

"Sixth, I have assumed that you propose to hand us over all the export traffic you can secure. Possibly I may be in error in this, & if I am, there is the more reason for our coming to an explicit understanding upon this question, which can only be arrived at after much thought & discussion. In your letter to me of the 3rd, you speak of your being under the necessity of discontinuing export business from St. John 'in the manner & to the extent you have heretofore carried on that business.'

There is here an implied reservation, if not an express one, that part of the business you would retain. We would naturally have to discuss between us what is the portion of this business you contemplate reserving for your Co. Export business consists of various classes, some of which are better paying than others, & it is only when the general traffic includes both, the less profitable & the more profitable, that average results are obtained which make it possible for the railway to transact the business. You would be the first to acknowledge that an offer to us of the unprofitable business, while you retain the profitable portion, could not be entertained, & would not be in accordance with either the letter or spirit of the suggestion that we should get your export traffic on the same basis as is provided for in our agreement with the G.T.R. All the above considerations, it appears to me, can only point to one conclusion, viz., that your Co. should have decided months ago what you intimate now you have decided, that the relations of the Government railway with your Co. render it necessary for you to withdraw from the export business at St. John. If such is really your present view, the conclusion will have likely forced itself upon you months ago, & when you did so decide it would have been better to have at once made such a proposition to us as is contained in your letter of the 3rd. Had that been done, we could then have debated the whole question with you, doubtless have come to a conclusion upon it, procured the necessary parliamentary authority, have increased our equipment & got into a shape in which we could have undertaken the business.

"Upon the whole, & treating your pro-

posal seriously, I would suggest that you continue the export business this winter as usual, & I will be prepared during the coming season to take your proposition up & make an honest effort to come to an agreement upon fair & reasonable terms."

MR. SHAUGHNESSY TO MR. BLAIR, SEP. 21.

"Your letter of the 16th, from St. Stephen, in reply to mine of Sep. 3, only reached me late Wednesday afternoon, & therefore, I was unable to reply before leaving for the west yesterday morning. There was nothing equivocal in our proposition; all of our controlled export traffic was distinctly specified, so that there was no ground for your apparent apprehension. That the more profitable business might be diverted by us. The junction point mentioned in your agreement with the G.T.R. is Montreal, and not St. Rosalie; hence, in submitting our proposition I named Montreal as the point of interchange in order that we might be in exact conformity with the

the I.C.R. facilities, but it is not easy to see why this should be the case under existing conditions. Although nearly two months will elapse before the winter exports commence to move, it might have been more convenient for all parties if earlier notice could have been given, but in view of our earnest endeavors during the past two years to secure a settlement of the several traffic questions in dispute between the Government railway system & this Co., you will, I am sure, absolve us from any responsibility whatever for the delay."

Mainly About People.

Mrs. C. R. Hosmer & family have returned to Montreal from St. Andrews, N.B.

Mrs. C. M. Hays, of Montreal, has been spending a few weeks at Cushing's Island, Me.

Mrs. Sutherland Taylor has returned to Montreal after a trip to the Lower St. Lawrence.

Mrs. T. G. Shaughnessy has returned to Montreal after spending the summer at St. Andrews, N. B.

Mrs. A. Piers, & the Misses Piers of Montreal spent the summer at the Cascade House, Little Metis, Que.

The family of J. W. Loud, Freight Traffic Manager of the G. T. R., spent the summer on the Maine coast.

W. Apps, Master Car Builder of the C. P. R., & Mrs. Apps, sailed from Montreal, Aug. 15, for a visit to England.

Mrs. C. F. Sise & Miss Sise have returned to Montreal after spending the summer at the Algonquin, St. Andrews, N.B.

Shirley Denison, of the C. P. R. Solicitors' Office,

Toronto, was married at Bowmanville, Ont., Sept. 5, to Miss M. B. Fairbairn.

C. S. Lee, General Passenger Agent of the Lehigh Valley Ry., spent a portion of Aug. in the Muskoka Lakes & the Lake of Bays district.

Mrs. P. A. Peterson & the Misses Peterson have returned to Montreal after spending the summer at the Manoir Richelieu, Murray Bay, Que.

President Shaughnessy left Montreal Sep. 20 on an inspection tour of the C. P. R. main line & branches between Montreal & the Pacific Coast.

J. D. Flower, of New York, who died at Prout's Neck, Me., in Aug., from paralysis, was Vice-President of the Kingston & Pembroke Ry.

G. R. Joughins, Mechanical Superintendent of the I.C.R., who is visiting in Europe, is expected back at Moncton, N.B., about the middle of Oct.



FIGURE 6.—A TYPICAL SNOW-SHED ON THE CANADIAN PACIFIC RAILWAY. (SEE PG. 259.)

The split fences & deflectors are seen on the mountain-side to the right.

G.T.R. agreement. A careful analysis of your agreement with the G.T.R. discloses nothing in the nature of a limit to the amount of export traffic which that Co. is at liberty to hand to the I.C.R. On the contrary, it is clearly their privilege to give the I.C.R. their entire export traffic, or any portion of it, without notice. We are warranted in assuming that the Government would not have entered into a contract of this character with a company whose winter export tonnage is, if anything, greater than our own, without having made the necessary preparations to handle the business. Although the G.T.R. Co. may hold this privilege in reserve, you will probably find upon inquiry that, with its shorter line to Portland & its excellent facilities, it will continue to send its business to that port, & the I.C.R. is offered our business instead on precisely the same terms. I can quite understand that if the G.T.R. were delivering its export business, or any considerable portion of it, to the I.C.R., the additional traffic coming from the C.P.R. might overtax

L. A. Lovett, barrister, of Liverpool, N.S., was married at Kentville, N.S., Aug. 15, to Miss E. B. Giffins, daughter of the General Manager of the Dominion Atlantic Ry.

W. Phillips is reported to have resigned the managership of the Niagara Falls Park & River Ry. His name is mentioned in connection with the management of the Winnipeg Electric St. Ry.

J. W. Hickson, eldest son of the late Sir Jos. Hickson, formerly General Manager of the G.T.R., who has been studying in Germany the last year, has taken the degree of Ph.D. with honors.

H. T. Smith, Advertising & Claims Agent of the London St. Ry. Co., recently received the medal granted him for his participation in repelling the Fenian Raid in 1866. He served in the St. John, N.B., volunteers.

A. C. Curry, New Brunswick agent of the Dominion Atlantic Ry., who resigned recently to go into life assurance business, was, on leaving, presented with a gold-headed cane by the office staff in St. John, N.B.

H. Ledyard, of Detroit, eldest son of President Ledyard, of the Michigan Central Ry., was married at Hamilton, Ont., Sep. 5, to Miss M. A. M. Hendrie, fifth daughter of W. Hendrie, G.T.R. cartage contractor.

D. W. Beatty, Chief Clerk of the Freight Claims Department of the G.T.R., was recently presented by the members of the staff with a dressing case & a gold-mounted walking stick, on ending his service with the Co.

G. B. Reeve, ex-General Traffic Manager of the G.T.R., writes the RAILWAY & SHIPPING WORLD from La Pomelo Rancho, La Mirada, Cal.:—"Allow me to compliment you on the advancement & growing importance of your publication."

E. A. Cunningham, who recently resigned the chief clerkship of the C.P.R. Stores Department, Montreal, was, on leaving, presented with a gold watch by fellow-employees of the department, & with an address & locket from the formen of the locomotive shop.

R. J. Smith, heretofore District Freight & Passenger Agent of the Great Northern Ry., (U.S.A.) at Winnipeg, has been appointed District Passenger Agent at Pittsburg, Pa. G. C. Jones has been appointed Acting District Freight & Passenger Agent at Winnipeg.

R. H. Ingram, Treasurer of the Central Vermont Ry., fell off the str. Bohemian just after it passed under the C.P.R. bridge at

Lachine, Que., on Sep. 3, having leaned too far over the railing. He was rescued by three Indians who put off from Caughnawaga in a canoe.

Sir Wm. Van Horne, in an interview in Montreal early in Sept., said there was no truth in the rumor that he intended to entirely sever his connection with the Company. "It is the old rumor," said Sir William with a laugh, "and it is hardly worth contradicting. I think I will be connected with the C.P.R. for some time longer."

Geo. Irving, who died at Montreal Aug. 28, aged 78, of pneumonia, came to Montreal some 40 years ago from Scotland, & was 33 years in the service of the G.T.R., retiring in 1897. After he came to Canada he inaugurated & practically owned the Adirondack & St. Lawrence Ry., which was afterwards sold to the G.T.R. He was then appointed Paymaster of the G.T.R.

Members of the Brotherhood of Railway Trainmen of America on the C.P.R. have been notified that M. Fitzgerald has resigned the chairmanship of the joint protective board & that T. G. McManamon, of Ruby Creek, B.C., the Secretary of the Committee, will perform the duties of Chairman until arrangements can be made for the members of the joint protective board to meet & elect a permanent Chairman & a Secretary.

E. B. Osler, of the C.P.R. directorate, has been on a visit to Great Britain, chiefly with the object of sitting for his portrait to Sir Geo. Reid, the President of the Royal Scottish Academy. Sir George was commissioned by the North of Scotland Canadian Mortgage Co., of Aberdeen to paint a full-length portrait of Mr. Osler, for presentation to Mrs. Osler, with a view of commemorating a connection with Mr. Osler's firm for 20 years which has permitted the payment of dividends of 10%, while at the same time a reserve fund of £90,000 has been accumulated against a paid-up capital of £150,000. The portrait is regarded as ranking with the best of Sir Geo. Reid's works.

Capt. P. J. Larkin died at St. Catharines, Ont., Aug. 31, aged 71, of cancer of the throat, after 8 months' illness. He was a native of Galway, Ireland, & came to Canada with his parents in 1837. For 14 years he lived in Toronto, & then went to St. Catharines. He sailed the lakes for many years, & was known in every port. When he retired from that sphere he was possessed of a handsome

competency. In 1875 he undertook a large contract on section 1 of the Welland Canal, which he carried out successfully. The firm of Larkin, Connolly & Co., was afterwards formed, & the work of constructing the graving dock & harbor works at Quebec was secured. The graving dock at Esquimalt, built in 1886, was another contract which fell to this firm. Capt. Larkin also built portions of the Ontario & Quebec division of the C.P.R. & the Esquimalt & Nanaimo & Shuswap & Okanagan railways in B. C. For the past three years the firm of Larkin & Sangster has been engaged on a large contract on the St. Lawrence canals at Iroquois, Ont.

C. P. Huntington, President of the Southern Pacific Ry., died in the Adirondacks, N.Y., Aug. 14. His railway career may be said to have begun in 1861 with the inception of the plans to build the Central Pacific R.R., & 40 years after, at the time of his death, he was the executive head of railway lines involving over 8,000 miles of road & of steamship interests connecting the continents of Asia & America, & leading the coastwise traffic of the American Continent. He was also the originator & chief adviser in many other transportation interests. The story of the construction of the Central Pacific by Mr. Huntington & his associates—Hopkins, Sanford & Crocker—and the difficulties which they overcame, are a familiar part of American history. After the completion of the trans-continental railway the development of the Pacific Coast states was undertaken, & the Southern Pacific line was extended northward to Portland & south to Los Angeles, through New Mexico & Texas to New Orleans & Galveston & into Mexico. Connecting steamship lines on the Atlantic & Pacific as auxiliaries to the railway system were created. In all these developments the prevailing motive force was the genius for construction & combination of Mr. Huntington. In 1869, he acquired control of the Chesapeake & Ohio R.R., which was extended & its terminal at Newport News enlarged & equipped. The great shipyard at the latter point is also a product of his foresight & energy. Every wheel & stroke of commerce throughout the great Southern Pacific system of railways & steamship lines was stopped for seven minutes during his funeral in New York. At the exact moment when the clock struck 11 in New York every hammer in all the shops ceased clanging, engines paused upon the rails, & steamships floated lifelessly upon the water.

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RAILWAY APPOINTMENTS, Etc.

Algoma Central.—Press items state that T. Williams, lately of the Bank of Toronto, London, has been appointed Paymaster of this line, & that H. Dreany, for several years a passenger conductor on the Sault Ste. Marie branch of the C.P.R., has been appointed General Agent of the A.C.R. at Michipicoton.

Boston & Maine.—W. J. Hobbs has been appointed Comptroller & General Auditor, with immediate charge of the treasury & accounting departments. J. W. Richards has been appointed Assistant General Auditor. M. T. Donovan has been appointed Freight-Traffic Manager, & A. S. Crane has been appointed Export Freight Traffic Manager, both reporting directly to the Second Vice-President. All with offices in the Union Station, Boston. F. O. Melcher has been appointed Superintendent of the Fitchburg Division, with office at Boston. M. P. Snyder has been appointed Assistant Superintendent, with office at Mechanicville, N. Y., & E. A. Smith Assistant Superintendent, with office at Boston. C. C. Rinehart has been appointed Assistant Superintendent of the White Mountains Division, with headquarters at Woodsville, N. H. The B. & M.R. having leased the Fitchburg R.R., & A. H. Harris, former general Canadian traffic agent of the Fitchburg at Montreal, having resigned, hereafter all business in connection with that office will be handled by A. Lalonde, Canadian passenger & freight agent of the B. & M. R., with office at 138 St. James Street, Montreal.

Canadian Pacific.—The newly appointed Land Commissioner, F. T. Griffin, has appointed J. L. Doupe Assistant Land Commissioner, as foreshadowed in our last issue. Mr. Doupe has been Chief Surveyor of the Land Department for a number of years.

J. Hennesy has been appointed Roadmaster Quebec Section, with headquarters at Three Rivers, Que.

N. Delaire has been appointed acting Roadmaster Montreal Terminals, with headquarters at Montreal.

P. Houston has been appointed Roadmaster M. & O. Section, with headquarters at Ottawa.

R. Clarke has been appointed acting Roadmaster North Bay Section, with headquarters at Mattawa, Ont.

Central Vermont.—J. E. Toohey having resigned, J. A. Sheedy has been appointed Superintendent of Bridges & Buildings. Office at St. Albans, Vt.

Grand Trunk.—G. C. Jones, heretofore Superintendent of the Middle Division at Toronto, has been appointed Superintendent of the Eastern Division at Montreal, succeeding J. M. Herbert, who resigned to enter the service of the Missouri Pacific Ry.

F. W. Egan, heretofore Assistant Superintendent of the middle division at London, has been appointed Superintendent of the middle division, succeeding G. C. Jones, transferred.

ter of the 4th & 5th districts, at Point St. Charles, Montreal, succeeding G. Beckingham, resigned.

Intercolonial.—N. L. Rand has been appointed acting foreman of engines from Campbellton East. J. Murphy has been appointed to a similar position from Campbellton West.

Kootenay Railway & Navigation Co.—A. M. Thomas has been appointed Auditor of the Co.'s line between Bonner's Ferry, Idaho, & Kuskonook, B.C.

Michigan Central.—S. H. Palmer has been appointed Canadian Passenger Agent at St. Thomas, Ont.

Northern Pacific.—W. G. Pearce, Assistant General Superintendent of the N. P. & Assistant General Manager of the Seattle & International, has been appointed Assistant to the President of the N.P., at Tacoma, Wash.

Quebec Southern.

—President H. A. Hodge issued the following circular at Rutland, Vt., Sep. 1: "Effective this date, the Quebec Southern Ry. Co. assumes the control & management of the East Richelieu Valley R. R. & the United Counties Ry. of Canada, with operating headquarters at St. Hyacinth, Que. Officers, agents & all other employes of the United Counties Ry. will perform the duties of their respective positions in the service of the Quebec Southern Ry. Co., from the above date. F. D. White, Vice-President, will perform the duties of General Manager."

Rutland.—A. H. Harris, formerly of the G.T.R., later in the I.C.R. service, & latterly with the Fitchburg Ry., has been appointed Canadian Traffic Agent of the Rutland, at 141 St. James St., Montreal. He has been placed in immediate charge of matters in Canada & agents in Canada are to report to him.

Rutland-Ogdensburg & Lake Champlain.

—C. L. Pierce, General Superintendent of these Companies, died at Rutland, Vt., Aug. 6, 1900. C. B. Hibbard will perform the duties of General Superintendent pro tempore, & correspondence relating to matters of that department should be addressed to him. Mr. Hibbard continues in the position of General Passenger Agent.

Grabbenheimer (injured in a railway wreck, —Oh, toctor, toctor! Vill I recover? Surgeon — Oh, yes! Grabbenheimer (greatly relieved)—About how mooch, do you t'ink?



FIGURE 7.—STONY CREEK BRIDGE, ROGERS' PASS, CANADIAN PACIFIC RAILWAY. (SEE PG. 259.)

Height, 300 feet; span, 336 feet.

A. S. Begg, heretofore Superintendent of the St. Clair Tunnel & terminals, has been appointed Assistant Superintendent of the middle division at London, succeeding F. W. Egan.

C. S. Cunningham, heretofore Trainmaster at Battle Creek, Mich., has been appointed Superintendent of St. Clair tunnel & terminals, embracing Port Huron tunnel & city, & Fort Gratiot yards, in Michigan; also Sarnia tunnel & city, & Point Edward yards in Ontario; & has assumed the duties of Agent at Port Huron tunnel, vice A. S. Begg, transferred. Office at Port Huron Tunnel.

J. McKeown has been appointed roadmas-

CURRENT TOPICS.**The Newfoundland Railway.**

The general elections which will be held in Newfoundland on Nov. 8, will have especial interest from the fact that the railway contract with R. G. Reid will be the principal issue. The present Bond Government favors the repeal or radical amendment of the contract, & refuses to allow Mr. Reid to transfer his interests thereunder to a limited liability company, while the opposition endorses the contract in its entirety. A very complete statement of the whole affair was published in our July issue, page 204.

Similar Names for Railway Companies.

The Dominion Parliament last session incorporated the South Shore Line Ry. Co. to acquire the property of the Shore Line Ry. Co. in New Brunswick & to extend it. This is likely to lead to confusion as the South Shore Ry. Co., running from Sorel to St. Lambert, Que., was already in existence. There is altogether too close a similarity between the names of these two companies, & the officials who have charge of the railway legislation at Ottawa should point out cases of this sort to the railway committees of Parliament with a view to securing a change of name where such may be necessary to prevent confusion.

Railway Operating Rules.

As will be seen by reference to the Act to amend the Railway Act, which was given in full in our last issue, the measure as passed by Parliament differs very materially from the original form in which it was introduced by the Minister of Railways, & has been changed to meet the objections urged in our April issue. We then particularly drew attention to the clause which proposed to empower the Railways Committee of the Privy Council to make rules for the operating of the railways which should supersede the rules of the railway companies where they differed therefrom. This proposed clause was entirely struck out, as we suggested, & an amendment made to section 217 of the act, which merely extends the power of the Governor-in-Council in regard to the sanctioning of the operating rules.

Sunday Cars at St. John, N.B.

The efforts of the Sad Sunday Society at St. John, N.B., to stop the running of electric cars on Sundays have not met with success. The St. John Railway Co. operates an elec-

tric lighting plant as well as the railway, & gave it to be clearly understood that if its railway employees were stopped from operating the cars on Sundays, the employees in the electric lighting department would also have to stop work, which would have practically put the city in darkness after midnight on Saturday & until midnight on Sunday nights. However, this perfectly defensible measure did not become necessary, as the cases instituted by the Society before the Police Magistrate were dismissed. Counsel for the Co. contended that it was exempt under section 6 of the Sabbath Observance Act, which provides that the Act shall not apply to persons conveying travellers, & also contended that persons doing "a Sabbath day's journey," or 2,000 paces, about a quarter of a mile, were travellers.

The C.P.R. Land Department.

Mr. Hamilton, who has just retired from the C.P.R. service, after being in it for 19 years, first as Surveyor & Engineer in the Land Department, then as Assistant Land Commissioner, & for the past 12 years as Land Commissioner, has been a most valuable officer of the Co. Nearly all the Co.'s townsites from Fort William to the Pacific coast were surveyed by him. He had charge of the Co.'s land office at Vancouver when that city was founded, & for several years he took an active part in its civic affairs, & later he successfully administered the enormous business of the Land Department, with a domain larger than many principalities. In promoting Mr. Griffin to succeed him the management has recognized faithful & efficient service, Mr. Griffin having been connected with the Land Department for 17 years, for the past 9 of which he has been Assistant Commissioner. He is eminently qualified for the position, & his appointment will be exceedingly popular throughout the West, where his duties will lie.

C.P.R. Finances.

The Railway Times, of London, Eng., in referring to the change at the end of the C. P.R.'s fiscal year, from Dec. 31 to June 30, says there is really no reason why this Co. should not make up its accounts every half-year as the G.T.R. & most other railway companies do. The Times, no doubt, refers to the English practice, but it must be aware that yearly accounts, & not half-yearly ones, are usual on this continent. We do not see that the making up of accounts half-yearly would be of any benefit to the shareholders, while it would entail more expense on the company. Yearly

accounts & yearly meetings are quite enough, & accounts made up for a full year are much more easy of comparison than half-yearly ones.

The Times refers to what it calls the "vagaries" of C.P.R. finance, & thinks there are visions of more stock to be issued shortly. Should such an issue be made, it will undoubtedly be based on sufficient reasons. An expanding property such as the C.P.R., which is constantly opening up new territory, & which has enormous districts to develop west of Lake Superior, cannot be expected to keep its capital account stationary. If it did other roads would soon pass it. Judging by the Co.'s past expenditures, any additional capital laid out in this way will yield good returns, & will not in any way impair the original security.

The Greatest Railway Mileage.

In our July issue we pointed out that the C. P.R. then had 10,018 miles of line, which has since been increased to 10,035 miles. In a recent article on the leading railway systems of America, the Scientific American conceded the 10,018 miles, but placed two other lines ahead of it, claiming that the largest aggregation controlled by any one company is that of the New York Central, which totals 10,410, & that the Pennsylvania system comes next with 10,392 miles. These figures are certainly erroneous. The August issue of the Official Guide shows that the New York Central has but 2,924 miles, which includes the West Shore 495 & the Wallkill Valley 33 miles, also trackage over 79 miles. On the same authority the Pennsylvania system comprises 4,233 miles, which includes 38 miles of the N.Y. & Long Branch, & the Pennsylvania Lines west of Pittsburg comprise 2,865, including 90 miles of track operated jointly, a total of 7,098 miles. In the article referred to in our July issue we only credited the Pennsylvania with 4,233 miles, having omitted the lines west of Pittsburg. We should like to know how the Scientific American arrived at the mileage it accords the New York Central & the Pennsylvania. The figures we have quoted from the Official Guide are furnished by officials of the two companies mentioned & are no doubt reliable. Again, the Scientific American credits the Southern Pacific with over 9,000 miles, but it only has 7,313, & it gives the Union Pacific as 5,584, while the actual mileage is 3,031, including 75 miles operated jointly. It credits the Northern Pacific with 5,449, but the actual mileage is 4,993, including 39 miles operated jointly, & 5 miles of trackage rights.

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FIGURE 8.—HYDRAULIC FILLING ON THE C.P.R. AT MOUNTAIN CREEK, B.C. (SEE PAGE 261.)

We cannot understand this series of mistakes in a publication so well informed as the Scientific American usually is. However, the fact remains that the C.P.R. has the greatest mileage, & that it is the only railway which has passed the 10,000 mark.

Canvassing for Passengers & Baggage.

The case of the Queen vs. the Verral Transfer Co., recently decided in Toronto, is of considerable importance to transportation companies. A by-law of the Police Commissioners of the City of Toronto, amongst other things, provides that, "No person licensed or authorized under this by-law shall employ or allow any runner or other person to assist or act in concert with him in obtaining any passenger or baggage at any of the stands, railway stations, steamboat landings or elsewhere in the said City." Some of the private cabmen complained to the Commissioners that the Verral Co. was violating the provisions of this by-law by canvassing for cab business, at what is known as the "Exit" at the Union Station. As the result of this complaint a prosecution was instituted by the police against G. W. Verral, the Manager of the Co., for employing a runner to assist him in obtaining passengers at the station. The defendant contended that the Union Station was private property, & did not come within the terms of the by-law. The Magistrate, however, decided that the exit was or was not a place within the meaning of the by-law, & they would not review his decision. The result is that the conviction stands, & the Verral Co., or rather its successor, The Canadian Transfer Co., Ltd., cannot lawfully canvass passengers at the Union Station. This decision does not, of course, interfere with the right of the Co. to canvass on the trains, which remains the same as before. As this decision practically deprives transportation companies of the control of their own pro-

perty, & is a serious interference with private rights, it is safe to assume that it will not be readily tolerated. If necessary an attempt should be made to secure an amendment to the Municipal Act to remedy the wrong.

Chicago & G.T. Finances.

A Chicago despatch of Sept. 18 says:—Judge Swan, of the U.S. Court, has granted a decree of foreclosure & sale of the C. & G.T.R., a part of the G.T.R. system, under the 1st mortgage covering the property of the Co. The complainants in the action are the Mercantile Trust Co., of New York. The 1st mortgage was given April 10, 1880, to secure an issue of \$6,000,000 of bonds bearing 6% interest. John Bell, of Belleville, Ont., Solicitor for the G.T.R. Co. of Canada, & E. W. Meddaugh, of Detroit, were the trustees, but they resigned, & were succeeded by the Mercantile Trust Co., complainants in the present suit. On Jan. 18, 1882, a 2nd mortgage was given to secure a further issue of \$6,000,000 bonds bearing interest at 5%, & on April 13, 1893, a 3rd mortgage was given to secure the same amount of bonds at the same interest. The decree was granted by consent of all parties to the suit. It is found that the C. & G.T.R. Co. is

indebted in large sums over & above the three mortgages, & that the property, franchises & rights of the Co. should be sold without delay. The amount due on the 1st mortgage, with interest, is now nearly \$6,000,000. The amount due is ordered to be paid within 10 days, or in default all the property of the C. & G.T.R. Co. in Michigan, Indiana, & Illinois, is to be sold at Port Huron by public auction. By request of all parties to the suit, W. S. Harsha, clerk of the U. S. Circuit court, is appointed special master Commissioner to conduct the sale.

AN EX-PRESIDENT HEARD FROM.

The Financial News, London, Eng., says:—"We have received a copy of the correspondence which has passed between Sir Henry Tyler & Sir Rivers Wilson, with regard to the reorganization of the mortgage bonds of the C. & G.T.R. Sir Henry, in a letter to the Secretary of the G.T.R., refers to the 'discreditable character of the whole business.' To this Sir Charles replied: 'I cannot allow such an imputation on the Board of Directors of the G.T.R., & on myself, as their President, to pass without notice & protest.' Sir Henry rejoins that he is unable to withdraw the words, 'discreditable character,' with regard to the recent dealings with the mortgage bonds of the C. & G.T.R. Co.; explains his reasons at great length, & concludes by stating, 'You would, I apprehend, have no difficulty whatever in dealing fairly on the basis of an exchange of 4% debenture stock with the Amsterdam & English Committee whom you have apparently forced into an unhappy compromise. You might thus restore the good feeling, now so ruthlessly disturbed, which would be so valuable to you in the future, & would enable you to obtain on easier terms all further capital required for the G.T.R. system, including its connection—to the value of which you have testified at public meetings—the C. & G.T.R.' To this, Sir Rivers, in response, declined to enter upon a discussion of the various points which had been raised by Sir Henry. The reply of Sir Henry to this communication, states: 'As you add that the scheme I condemn is "framed in the interest alike of the C. & G.T.R., & of the G.T.R.," I am compelled to reply that no scheme which is founded on distinct repudiation can be to the interest of any company. The distinct repudiation of an obligation solemnly entered into & printed on every 2nd mortgage C. & G.T.R. bond—acted upon



FIGURE 9.—GRAVEL BED AND MONITOR, MOUNTAIN CREEK, B.C. (SEE PAGE 261.)

for 18 years, & due to be fulfilled for 22 years more—by means of what I may call a mere trick of foreclosure, fully justifies me in applying the term discreditable—or, to use your own synonym, dishonorable—to the President & the board so unnecessarily engaged in carrying it into effect."

C.P.R. Earnings & Expenses.

Gross earnings, working expenses, net profits and increases or decreases over 1899, from Jan. 1, 1900:

Earnings.	Expenses.	Net Profits.	Increase or Decrease.
Jan., \$2,152,071.32	\$1,460,501.71	\$691,569.61	\$74,935.75+
Feb., 1,954,087.59	1,331,355.34	622,732.25	23,030.77+
Mar., 2,294,786.97	1,495,685.73	799,101.24	29,794.33+
Apr., 2,491,194.47	1,464,126.85	1,027,067.62	106,764.13+
May, 2,662,897.81	1,583,227.32	1,079,670.49	46,911.88+
June, 2,612,759.73	1,554,954.11	1,057,805.62	34,745.42+
July, 2,471,169.64	1,586,795.74	884,373.90	88,587.73+

\$16,638,967.53 \$10,476,646.80 \$6,162,320.73 \$167,105.89
+ Increase, - Decrease.

Approximate earnings for Aug. \$2,569,000, against \$2,429,000, in Aug. 1899. Increase \$140,000.

HALF-YEARLY DIVIDEND.

The directors have declared dividends of

2% on the preference stock, & 2½% on the common stock, for the ½ year ended June 30, payable, Oct. 1.

SUBSIDIARY LINES.

DULUTH, SOUTH SHORE & ATLANTIC.—Approximate earnings for Aug., \$254,440; increase over Aug., 1899, \$8,581.

Net earnings for 5 months to May 31, \$387,381, against \$282,905 for corresponding periods.

MINERAL RANGE, HANCOCK & CALUMET.—Approximate earnings for Aug., \$61,841; increase over Aug., 1899, \$9,523.

MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE.—Approximate earnings for Aug., \$326,831; decrease from Aug., 1899, \$51,621.

Net earnings for 5 months to May 31, \$949,669, against \$559,031 for corresponding period.

It is said the C.P.R. has contracted to haul over its line from St. John, N.B., to Montreal, 80,000 tons of Springhill coal during the coming winter. This will be in the nature of an experiment.

Canadian Pacific Railway Land Sales.

	1900	1899	1900	1899
Jan.....	31,486	147,18	\$100,857.85	\$46,411.35
Feb.....	23,613	13,747	75,771.19	43,371.69
Mar.....	31,183	24,045	97,777.79	75,460.76
Apr.....	58,457	36,626	181,775.78	116,835.84
May.....	66,057	26,584	214,851.09	88,928.98
June.....	57,831	54,225	188,779.64	169,192.74
July.....	49,715	47,401	129,481.42	149,546.48
Aug.....	32,178	35,214	103,480.78	110,795.50
	341,520	252,560	\$1,092,775.54	\$800,453.34

Grand Trunk Earnings, Expenses, &c.

The secretary has issued from the London office the results, subject to audit, of the accounts for the ½ year ended June 30, against which we have placed for purposes of comparison the figures for the corresponding ½ of 1899:

	1899.	1900.
Gross receipts.....	£1,982,200	£2,139,000
Working expenses.....	1,298,200	1,442,000
Net receipts.....	£685,000	£697,000
Net revenue charges, less credits.....	489,800	491,300
Balance of net revenue.....	£195,200	£205,700

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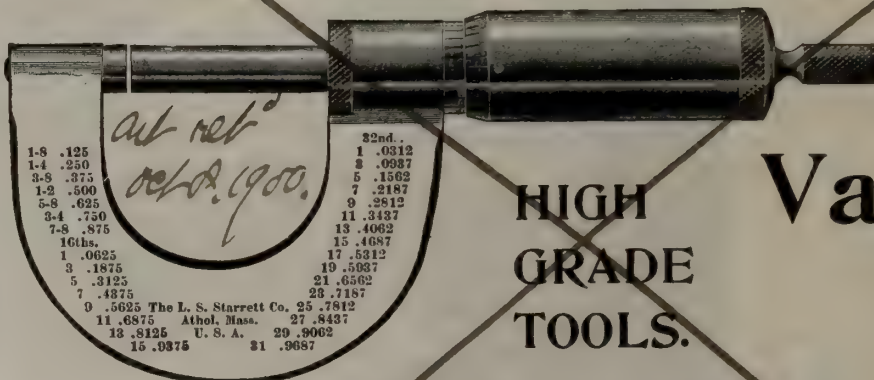
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Kingston, Ont. Windsor, Ont.

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The Fairbanks Co., 749 Craig St., Montreal, Que.

Deduct—Amounts payable by the Co. under traffic & other agreements, Chicago & G. T. Co.....	£36,400 ..	£30,800
Detroit, G. H. & M. Co.....	22,400 ..	22,900
Total deductions.....	£58,800 ..	£53,700
Surplus for the ½ year.....	£136,400 ..	£152,000
Add—Balance brought from previous ½ year.....	4,200 ..	3,900
Balance available for dividend.....	£140,600 ..	£155,900

The above balance admits of the payment of the full dividend for the ½ year on the 4% guaranteed stock, & a dividend of 1½% on the 1st preference stock, leaving about £2,000 to be carried forward.

The following statement of earnings, supplied from the Montreal office, includes the G.T. of Canada, & the Detroit, Grand Haven

TRAFFIC RECEIPTS OF THE SYSTEM.

Traffic receipts, July. 1 to Aug. 31 :

	1900.	1899.	In-crease.	De-crease.
Grand Trunk....	£769,523	£752,645	£16,878	.....
D., G. H. & M..	38,660	41,372	.....	2,712
Total.....	£808,183	£794,017	£14,166	.....

G. B. Reeve's California Ranch.

The many friends of George B. Reeve, ex-General Traffic Manager of the G.T.R., will be pleased to see the views of his home, La Pomelo Rancho, La Mirada, Cal., which are given on page 275. The first view shows the ranch buildings. On the right of the view is the farm hands' house, next to it the long low building is the engine house, then the driving shed, horse corral, barn, packing house &

lines, & we have already very good connections by the existing lines."

Compound Decapod for M., St. P. & S. Ste. M. Ry.

The Baldwin Locomotive Works has recently delivered to the C.P.R.'s subsidiary line, the Minneapolis, St. Paul & Sault Ste. Marie Ry., for service between Minneapolis & Pennington, Wis., 165 miles, a compound decapod locomotive, illustrations of which are given on page 275. The ruling grade on that division is 42 ft. to the mile, one such grade being 10 miles long. The maximum grade is 63 ft. per mile, but it is not expected to haul the full tonnage over that grade without doubling. The decapod is expected to haul, when working compound, a train weighing 2,000



FIGURE 10.—SNOW-SHEDS ON THE C. P. R. IN THE SELKIRK MOUNTAINS, B. C. THE WINTER TRACK UNDER COVER ; THE OUTER TRACK FOR SUMMER USE. (SEE PAGE 258.)

& Milwaukee Rys., the earnings of the Chicago & G.T., which is in the hands of receivers, being omitted :

	1900.	1899.	Increase.	Decrease.
July	\$1,844,458	\$1,799,945	\$44,513	.....
Aug.....	2,088,602	2,064,269	24,333	.....
	\$3,933,060	\$3,864,214	\$68,846	.....

The following figures are issued from the London, England office :

GRAND TRUNK RAILWAY.

Revenue statement for July :

	1900.	1899.	Increase.	Decrease.
Gross receipts.....	£360,400	£350,147	£10,253	.....
Working expenses.	242,600	235,115	7,485	.....

Net profit.... £117,800 £115,032 £2,768

DETROIT, GRAND HAVEN & MILWAUKEE RY.

Revenue statement for July :

	1900.	1899.	Increase.	Decrease.
Gross receipts.....	£18,500	£79,704	.....	£1,204
Working expenses.	13,300	12,811	489	.....

Net profit..... £ 5,200 £ 6,893 £ 1,693

chicken corral, winding up at the left with the water-tower, which contains two tanks of 30,000 gals. each.

The second view shows Mr. Reeve's residence, part of the reservoir, with Mrs. Reeve & the Superintendent of the ranch, S. H. Druce, sitting on its edge, & Mr. Reeve returning from shooting, not empty handed. The reservoir is of solid cement, & holds 333,000 gallons. The principal products of the ranch are lemons, oranges, grape fruit & walnuts, while in what is termed the home garden, there are figs, almonds, apples, pears, plums, quinces, sapodillas, peaches, apricots, & berries of all kinds.

In answer to a question as to whether the G.T.R. intended establishing an Atlantic steamship line, General Manager Hays recently said :—"It is not advisable, as a rule, for railway companies to operate steamship

tons, exclusive of the tender & caboose, on a 42-ft. grade.

The total weight in working order is 207,210 lbs. & 184,360 lbs. are on 5 pairs of drivers. The main driving journals are 9½ in. in diameter by 12 in. long, & the others are 8½ x 12 in. The driving wheel base is 19 ft. 4 in., the engine wheel base is 28 ft., & the length of the engine & tender over all is 68 ft. 10 in. The tender loaded weighs 120,000 lbs. & has a capacity for 7,000 gals. of water & 9 tons of coal, & the Westinghouse friction buffer will be used at the rear of the tender.

The cylinders are 17 & 28 in. x 32 in., the driving wheels are 55 in. in diameter & the working steam pressure is 215 lbs. The boiler is of the radial stay wagon top type, 68 in. in diameter at the front, & the firebox is 11 ft. long by 3 ft. 5½ in. wide ; the depth of the firebox at the front is 77¾ in., & 75¾ in. deep

at the back. There are 344 tubes, 2 in. in outside diameter & 15 ft. 7 in. long. The firebox heating surface is 201 sq. ft., the tube heating surface is 2,799 sq. ft., making a total of 3,000 sq. ft.; the grate area is 37.5 sq. ft. Piston valves are used having a travel of $5\frac{3}{4}$ in. The special equipment includes American-Westinghouse driver brakes & Westinghouse tender brakes. General dimensions other than those mentioned above are as follows:—

Gauge	4 ft. 8½ in.
Fuel	Soft coal
Wheel base, total (engine and tender)	57 ft. 4 in.
Length over all, engine	45 ft. 6 in.
Height, centre of boiler above rails	12 ft. 11 in.
Height of stack, above rails	14 ft. 7 in.
Drivers, material of centres	Cast steel
Truck wheels, diameter	30 in.
Journals, truck axle, size	6 x 10 in.
Main crank pin, size	6½ x 7 in.
Piston rod, diameter	4½ in.
Main rod, length center to center	9 ft. 5½ in.
Steam ports, circular length	20½ in.
Steam ports, width	17 in.
Exhaust ports, length	20½ in.
Exhaust ports, width	4½ in.
Bridge, width	4 & 4½ in.
Valves	Balance piston
Valves, greatest travel	5½ in.
Valves, outside lap	H. P. ¾ in.—L. P. ½ in.
Valves, inside lap	H. P. ¾ in. negative—L. P. ½ in.
Valves, lead in full gear	H. P. 0—L. P. ½ in.
Boiler, material in barrel	Steel
Boiler, thickness of material in barrel	11-16 in. & ¾ in.

Seams, horizontal. Butt jointed with double cover strips
Seams, circumferential.....Double riveted
Thickness of tube sheets.....½ in.
Thickness of crown sheet.....¾ in.
Crown sheet stayed with.....Radial stays
Dome, diameter.....32½ in.
Firebox, material.....Steel
Firebox, thickness of sheets.....5-16 in.
Firebox, with brick arch.
Firebox, water space, width.

Front, 4 in.; Sides, 3½ in.; Back, 3½ in.
Grate.....Rocking
Smokebox, diameter.....69 in.
Smokebox, length.....63½ in.
Exhaust nozzle.....Double
Exhaust nozzle.....Permanent
Stack.....Straight.
Stack, least diameter.....16 in.
Stack, height above smokebox.....2 ft. 7½ in.
Type.....Swivel truck
Material in tank.....Steel
Thickness of tank sheets.....¼ & 3-16 in.
Type of under-frame.....Steel channels
Type of truck.....1 beam bolster, arch bar
Truck with rigid bolster.
Type of truck spring.....Triple elliptic
Diameter of truck wheels.....33 in.
Diameter & length of axle journals.....5½ x 30 in.
Distance between centers of journals.....77 in.
Type of truck bolster.....1 beam
Type of truck trans-om.....Channel
Length of tender frame over bumpers.....28 ft. 3½ in.
Length of tank.....24 ft. 7 in.
Width of tank.....10 ft.
Height of tank, not including collar.....4 ft. 6 in.
Height of tank over collar.....5 ft. 4 in.
Type of back drawhead.

Westinghouse friction draft gear.

Railway Equipment Notes.

The Great Northern of Canada is receiving considerable new equipment.

The Lake Erie & Detroit River Ry. recently purchased 3 locomotives in the U.S.

The Newfoundland Ry. recently received 4 locomotives from the Baldwin Locomotive Works.

The Algoma Central recently placed an order in the U.S. for 100 flat cars of 40 tons capacity.

The Richmond Locomotive & Machine Works will soon be operated throughout by electricity.

The Ottawa & New York is about to purchase 2 freight locomotives, but not any passenger locomotives, as erroneously stated in some papers.

Orders issued a short time since by the Northern Pacific for freight cars, the cost of which in the aggregate would have been \$250,000, have been countermanded, owing to the partial failure of the wheat crop in the Northwest.

Mackenzie, Mann & Co., recently purchased an official car in Chicago, which has been lettered Canadian Northern & named the Atikokan. The car Dauphin, which they previously used, has been transferred to Sup-

THE BARRETT TRACK JACK.

Recommended as a standard by the

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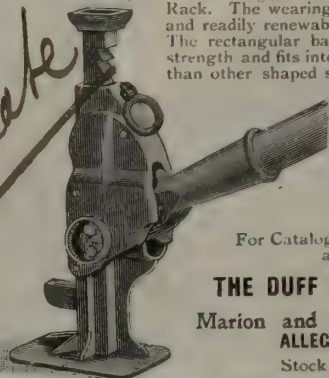
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ALES, EXTRA PORTER

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PREMIUM LAGER.

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promptness secures business
Immediate information is required:
an answer is wanted, and wanted quick:
you are not in business for exercise:

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BUILDINGS ON G. B. REEVE'S RANCH, LA MIRADA, CALIFORNIA.

erintendent Hanna, of the Canadian Northern.

The Ottawa & Gatineau & the Pontiac & Pacific Junction Rys. are in the market for some passenger & freight equipment, as mentioned in our June issue, pg. 167. Master Mechanic Kay recently visited Cincinnati to inspect some 1st class coaches there, but at latest advice no order had been placed by either Co.

The Richmond Locomotive Works has recently received, by cable, from the Finland State Railways an order for twelve 16 x 24 inch 10-wheeled passenger locomotives. The contract price of this order aggregates upward of \$160,000. This is the third order for engines received by the Richmond Works from the Finland State Railways, & is an illustration of the increasing demand for American locomotives abroad.

At the Master Mechanics' Association Convention in June it was reported to have been stated that the first steel cab built on a locomotive was in 1891, on the Southern Pacific System. F. R. F. Brown, of Montreal, wrote to a contemporary stating that this was not the case, & that he believed that the first steel cab put on a locomotive was built by him when he was Mechanical Superintendent of the C. P. R. in 1889. L. B. Paxson, of the Philadelphia & Reading, followed this up with a letter

stating that the first iron cabs for locomotives were built on that road in 1859.

A Chicago despatch says two boats left South Chicago Sep. 25 with more than two complete railway trains for cargoes. The boats are car ferry barges nos. 1 & 2 of the Lake Michigan Car Ferry Transportation Co. They carried two complete locomotives, set up & ready for running, 40 flat cars & 2 passenger coaches. They are bound for the harbor at Michipicoton & will be used on the Algoma Central Ry. Michipicoton harbor is without any rail connection with the outside world, & so all supplies are shipped in by boat. The car ferry barges, being designed for this work, with tracks on their decks, were chartered, & loaded the outfit at Calumet.

The Prince Edward Island Ry. is getting two narrow gauge locomotives, with 4 coupled wheels & 4-wheeled truck, of which the following are the general dimensions.

Gauge	3 ft. 6 in.
Driving wheels, diameter inside of tire	42 in.
Cylinders, diameter	15 in.
Stroke	20 in.
Rigid wheel base	7 ft. 9 in.
Engine wheel base	19 ft. 8 in.
Truck	4-wheeled
Total wheel base of engine & tender	38 ft. 6 in.
Weight on drivers	43,000 lbs.
Weight on truck	22,000 lbs.
Total weight of engine about, but not less than	60,000 lbs.
Fuel	Soft coal

Tender	4-wheeled trucks
Capacity of tank	2,200 Imp. gals.

At the Prince Edward Island Ry. shops at Charlottetown there have been built this year two 1st class cars for winter service 42 ft. long, 1 baggage car 42 ft. long, 18 box cars 28 ft. long of about 12 tons capacity & 20 platform cars. A 1st class 50 ft. long is now being built and another will be built this year, also one second class car. Vacuum brakes & Miller couplers are used on all passenger equipment. Very few of the freight cars are equipped with air brakes. An order has recently been placed for steel tire wheels for all passenger cars. The Dominion estimates for the current year provide \$10,000 for rolling stock for this line & \$3,500 for machinery. With the latter amount there will be purchased a planer, a mortiser, a boring machine, a bolt cutter & 2 lathes for the machine shop.

What is said to be the largest locomotive in the world was recently built for the Pittsburgh, Bessemer & Lake Erie Ry. With others to be constructed it will be used in hauling exceptionally long, heavy trains of ore & iron at moderate speeds. The net hauling capacity on a level & nearly straight track is 7,847 tons. When the engine is working up to its full power, the drawbar pull is 56,300 lbs. The total weight of the engine alone is 125 tons, & of the tender 70 tons. The boiler is 88 ins.



G. B. REEVE'S RESIDENCE, LA POMELO RANCHO, LA MIRADA, CALIFORNIA.

in diameter at the throat-sheet. There are 406 $2\frac{1}{4}$ -inch tubes in the boiler, each measuring 15 ft. over the sheets, & the total heating surface in the tubes is 3,564 sq. ft. The heating surface in the firebox is 241 sq. ft. & the grate area 26.8 sq. ft. The total heating surface is 3,805 sq. ft. The driving journals, on the front intermediate, & back axles measure 9 by 13 ins.; the main driving journals measure 10 by 13 ins., the main crank pin is $7\frac{1}{2}$ ins. in diameter by 8 ins. in length. The cylinders are 24 ins. in diameter by 32 ins. in length, piston rods have a diameter of $4\frac{1}{2}$ ins. The tender has a tank capacity of 7,500 gals., & carries 14 tons of coal.

On the Great Northern Ry. of England the problem of automatic couplings has been ingeniously solved. As a foundation the automatic coupler of the M.C.B. Association of the U.S. has been taken, & this had been modified so that it is incorporated with the ordinary English hook & chain. When the coaches are to be coupled automatically, the couplings are so arranged as to be held rigidly in a horizontal position when they engage, in the usual way common in the U.S. If, however, the carriage is so fitted as to be incorporated with an ordinary train, the automatic coupler is allowed to hang vertically & the hook common to English carriages is exposed, & can be used with a shackle exactly in the usual manner. The side buffers are arranged so that they can be run back out of the way when not required, but if the hook & shackle are used they are brought forward & held extended by a half sleeve on the shanks; the usual play on the buffer springs being, of course, retained. Other English railways, the Northeastern, the North-British & the Great Central, are also fitting their rolling stock with automatic couplers of the same description.

After repeated delays, the law which the U.S. Congress enacted in Mar. 1893, requiring all railway companies engaged in interstate commerce to equip their cars with power or train brakes & automatic couplers, went into effect on Aug. 1. It is expected that full compliance with the law will tend to greatly lessen the number of accidental injuries & deaths among railway trainmen. As a matter of fact, statistics show that the number of accidents has been growing less since the roads began to equip their cars with the power brakes & automatic couplers. When the law was passed 7 years ago, only 23% of the freight cars in use were supplied with air brakes, & but a slightly larger proportion had automatic couplers. Four years later 33% had air brakes & 50% were fitted with couplers. The number of railway employees killed during the twelve months ended with June 30, 1893, was 2,727, & for the year ended June 30, 1897, the number was 1,693. Since Jan. 1 the companies have been making tremendous efforts to equip all of their rolling stock with air brakes and automatic couplers, & a majority of the big railways are now in a position to fully comply with the law.

The Algoma Central is obtaining 4 consolidation locomotives from the Baldwin Locomotive Works. Following are the general dimensions:—

Cylinders, diameter	21 in.
stroke	30 in.
valve	Balanced piston
Boiler, diameter	68 in.
thickness of sheets	$1\frac{1}{2}$ in. & $\frac{3}{4}$ in.
working pressure	200 lbs.
Fuel	Soft coal
Firebox, material	Steel
length	120 in.
width	42 in.
depth	F. 72 in., B. 69 in.
thickness of sheets, sides	$\frac{3}{4}$ in.
" " back	$\frac{1}{2}$ in.
" " crown	$\frac{1}{2}$ in.
" " tube	$\frac{1}{2}$ in.

Tubes, number	321
diameter	2 in.
length	13 ft. 6 in.
Heating Surface, firebox	202 sq. ft.
tubes	2,253 sq. ft.
total	2,455 sq. ft.
grate area	35 sq. ft.
Driving Wheels, diameter outside	56 in.
diameter of centre	50 in.
journals	8 in. x 11 in.
Engine Truck Wheels, diameter	30 in.
journals	6 in. x 10 in.
Wheel Base, driving	15 ft. 1 in.
total engine	23 ft. 9 in.
total engine & tender	52 ft. 6 in.
Weight, on drivers	158,800
on truck	16,000
total engine	174,800
total engine & tender about	265,000
Tender, diameter of wheels	33 in.
journals	5 in. x 9 in.
tank capacity	4,500 gals.
Service	Freight

Intercolonial Railway Equipment.

The Dominion Parliament last session voted the following amounts:

CHARGEABLE TO CAPITAL.

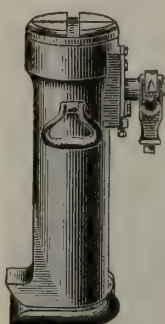
Rolling stock	\$190,000
Machinery at various points	13,200
To change air brakes on passenger cars etc.	13,000
To apply air brakes to freight cars	40,000
To change couplers on passenger cars	26,000
To equip passenger cars with vestibules	10,000
Machinery at shops	5,000
To change drawbars on freight cars	20,000
Additional rolling stock	950,000
To purchase tools & machinery	66,000
To equip passenger cars with gas apparatus	4,800

In addition to the order mentioned in our last issue as having been placed with the Richmond Locomotive & Machine Works for 10 consolidated locomotives, another order has been placed in the United States for eight 10 wheel locomotives, designed for fast passenger service, with cylinders 20x26 ins. & 72 ins. drivers, delivery to be made as soon as

Norton's Ball Bearing Jacks.

Standard Wherever Jacks are Used.

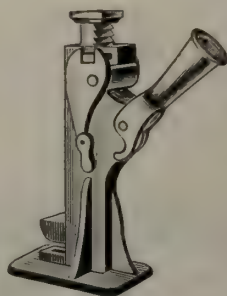
50 STYLES. 8 TO 70 TONS CAPACITY.



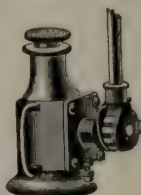
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10 Ton Automatic Lowering Jack.



15 Ton Track Jack.



8 Ton Jack.

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SPRING STEEL.

"PHENIX" Loco. Spring Steel is the
accepted Standard in Canada.

SOLE AGENTS:

James Hutton & Co., Montreal.

NEW BOOKLETS.

The Chicago, Milwaukee & St. Paul Railway is issuing a series of booklets regarding points of interest along its lines, and if you are interested in the western country, or contemplating a trip, write Geo. H. HEAFORD, General Passenger Agent, Chicago, Ill., for the special publication desired, enclosing four cents in stamps for postage for each one.

- No. 1. The Pioneer Limited.
- No. 2. The Land of Bread and Butter.
- No. 3. The Fox Lake Country.
- No. 4. Fishing in the Great North Woods.
- No. 5. The Lake Superior Country.
- No. 6. Cape Nome Gold Diggings.
- No. 8. Summer Days in the Lake Country.
- No. 9. Summer Homes, 1900.
- No. 11. The Game of Skat.
- No. 12. Milwaukee—The Convention City.
- No. 13. A Farm in the Timber Country.
- No. 14. Stock Raising in the Sunshine State.
- No. 15. Hunting and Fishing.

Ship Lamps, Head Lights, Railway Signals and Lamps.

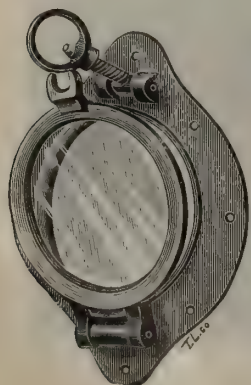
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Write for Catalogue.

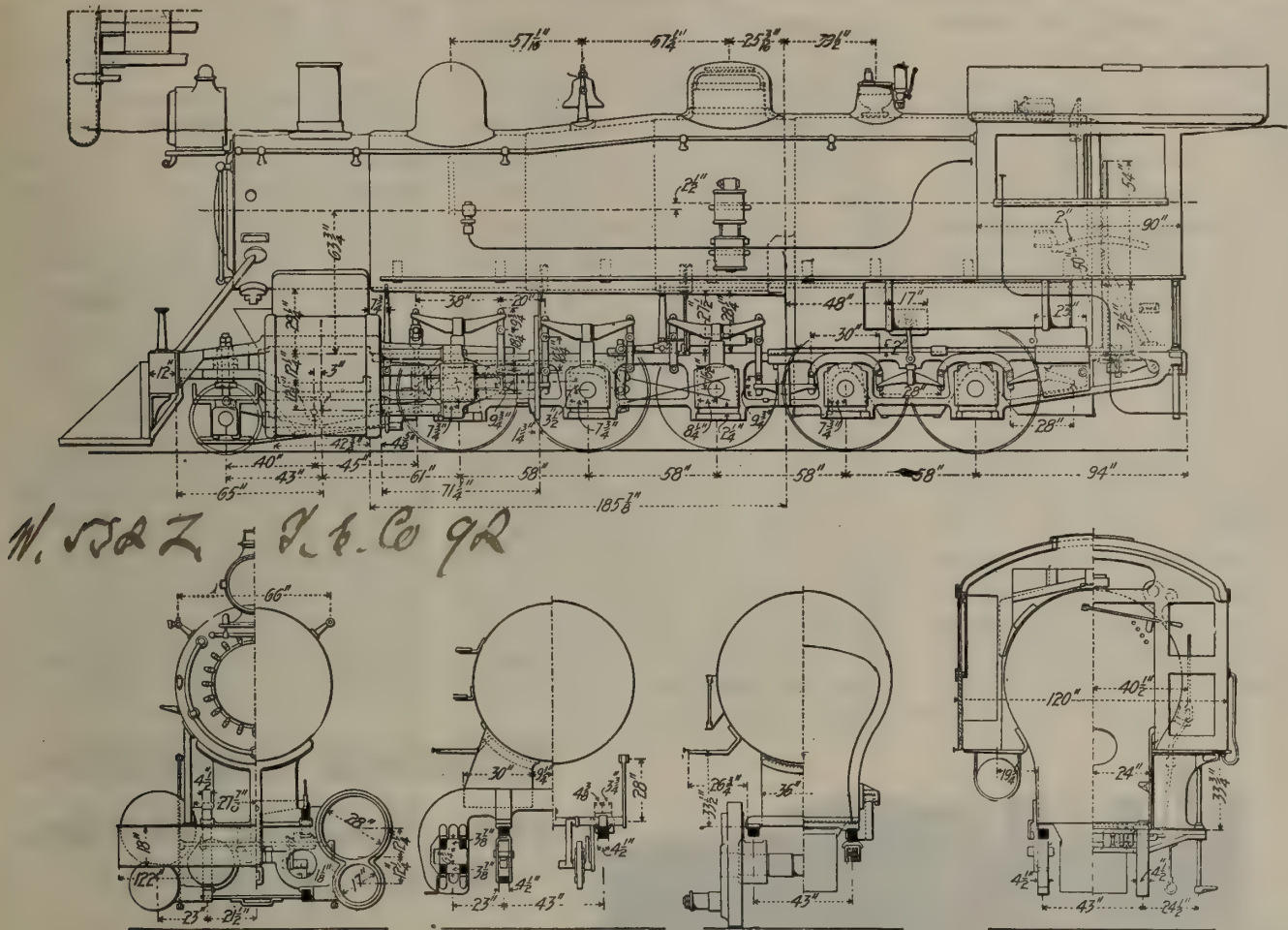
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314 Front Street West, - TORONTO.



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STEAMSHIP
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BALDWIN COMPOUND DECAPOD LOCOMOTIVE FOR MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RAILWAY.

possible. It is expected that a further order for 10 will be placed shortly.

The following cars are expected to be added this year on capital account:—4 sleepers, 6 first class, 3 diners, 6 second class, 3 postal & express, 3 baggage, 4 postal, 39 refrigerator & live stock, 1,500 box of 60,000 lbs capacity.

Grand Trunk Railway Equipment.

Press reports say the Co. has placed orders in the U.S. for a number of mogul locomotives.

An order is said to have been placed in the Co.'s Montreal shops for 1,000 box cars of 60,000 lbs capacity.

Twenty-five passenger & freight locomotives, whose usefulness had gone, were recently broken up at the Montreal shops.

Fifty new cinder dump cars have been put into service at terminal points between Montreal & Port Huron. They were built at the Montreal shops.

Five more 1st-class coaches of the 800 series have recently been completed at the Co.'s Montreal shops. They are 68 ft. long, with a seating capacity for 68 passengers, the body of the car holding 54 & the smoking-room 14. They have wide vestibules & are up to date in every respect.

The Co.'s Montreal shops have recently completed 2 heavy freight locomotives of the 900 class. They form part of an order of 24 of similar character which will be completed within the next few months. The weight of these engines is 175,000 lbs, & the tender 90,000 lbs, making a total weight of 250,000 lbs. The locomotives will be able to handle between 45 and 50 loaded cars on an ordinary grade.

The Co. recently placed an order in the U. S. for 300 coal cars of 80,000 lbs. capacity. The general dimensions are 37 ft. 11½ ins. long over end sills, 4 ft. 3 in. high from top of floor to top of box, 9 ins. wide over side sills. The cars are to be equipped with M.C.B. draft gear, automatic couplers, Westinghouse air brakes, twin hoppers, standard M.C.B. 5x9 iron axles, 650 lb. cast iron wheels, cast iron journal boxes, metallic brake beams, longitudinal sills 6x12, end sills 9x12 & malleable iron stake pockets.

The management having decided to renumber every piece of rolling stock in its possession, with the exception of locomotives, the work is now proceeding. It will probably occupy more than a year, & will involve a large expenditure. M. C. Sturtevant, Superintendent of Car Service, is in charge of the work; the renumbering will be according to



BALDWIN COMPOUND DECAPOD LOCOMOTIVE FOR MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RAILWAY.

class, length & capacity. The subjoined table is explanatory:

Passenger equipment.....	1 to 2,999
Box cars.....	3,000 to 29,999
Furniture.....	30,000 to 39,999
Refrigerators.....	40,000 to 49,999
Stock cars.....	50,000 to 59,999
Flat cars.....	60,000 to 69,999
Coal cars.....	70,000 to 79,999
Tank cars.....	80,000 to 89,999
Caboose & miscellaneous cars.....	90,000 to 99,999

Cars of the present standard of dimensions in each class are assigned the lower numbers in the particular series selected. There are sufficient spare numbers to provide for such cars as may be constructed or acquired by the Co. within 7 or 8 years. Then come cars of smaller lengths & capacity. The plan contemplates that by the time the intervening numbers are utilized, the older cars will have become demolished, & equipment added can be numbered in sequence to the completion of the allotment. Before this is accomplished the earlier numbers will have become vacant, & it will be practicable to revert to the numbers first employed, & repeat the operation throughout all the series.

Two new dining-cars have recently been put on between Suspension Bridge & Chicago. They are 74 feet over all, & are equipped with standard wide vestibules, steel platforms and 6-wheel trucks, with 33-ins. steel tired wheels. Air signals are attached, an anti-telescoping device affixed, & all modern appliances added.

The general exterior appearance of the cars is similar to the new standard day coaches which are run on the G.T.R. system. The windows are glazed with heavy plate glass, are all double, being dust proof when shut. The dining-room is 31 ft. 8 ins. long, & will seat 30 comfortably. The general style of the interior design is colonial, in quartered oak. The chairs are of oak, upholstered in leather. The windows are decorated with costly draperies, and the openings into the dining-room are provided with ornamental portieres. The floors are carpeted with handsomely designed Wilton throughout the whole length of the car, & the vestibuled floors are covered with rubber tiling. The kitchen & pantry are equipped with refrigerators, range, steam table, lockers & all modern conveniences, the tables being covered with polished brass. A handsome sideboard is placed at one end of the dining-room just in front of the pantry & opposite to the sideboard a wine locker is provided. China & linen closets, wardrobes & white metal washstands are in evidence in accordance with modern practice. The cars are heated with hot water coils in connection with steam from the engine, & lighted by acme lamps, & the trimmings throughout are of solid bronze most beautifully designed. The car, which is running between Suspension Bridge & Port Huron, is elaborately decorated in a general green & gold effect, while the one operated

between Port Huron & Chicago is decorated in gold, maroon being the predominating color, giving the car a most comfortable appearance.

Two buffet & parlor cars built in the Co.'s Montreal shops have recently been placed on the International Limited, running between Montreal & Toronto. It is a common belief, but altogether erroneous, that all the Pullman cars used to be built at the Pullman works in Illinois. At the G.T.R. Montreal workshops 35 Pullmans have been constructed, & it was a favorite saying of the late G. M. Pullman that next to those built in his own workshops, he liked those constructed by W. McWood, & certain it is that the experience gained by the G.T.R. Master Car Builder in the manufacture of Pullmans has been turned to splendid account in the two handsome specimens of railway rolling stock now referred to. The cars are striking in the first place by reason of their size, measuring 71 ft. from sill to sill, & if the vestibule be included an additional 10 ft. The vestibules are of the Pullman standard type with steel platforms. The cars are built on 6 wheel trucks with steel tires. The framework of the exterior of the cars is white wood, painted with the G.T.R. standard body color, bottle green, tastefully & exquisitely finished. The furnishing of the interior is of Canadian quartered oak, finished with English oak lining. The head lining is embossed to harmonize with the olive-colored & gold-



Richmond Locomotive and Machine Works,

RICHMOND, VIRGINIA, U.S.A.

BUILDERS OF

Simple and Compound

LOCOMOTIVES.

Adapted to every variety of service.

MANITOBA

The Government Crop Bulletin issued Dec. 12th, 1899, gives the following statistics for the year:

CROPS.

ACRES.	AVERAGE YIELD.	TOTAL.
Wheat.....1,629,995	17.13 bus.	27,922,230 bus.
Oats.....575,136	38.80 "	22,318,378 "
Barley.....182,912	29.4 "	5,379,156 "
Potatoes.....19,151	168.5 "	3,226,395 "

STOCK.

Beef Cattle exported during the year	12,000
Stockers exported.....	35,000
Total value dairy products.....	\$470,559 09

10,500 FARM LABORERS

Came from Eastern Canada to assist in the harvest fields of Manitoba in 1899—and the demand was not fully satisfied.

MANITOBA FARMERS ARE PROSPEROUS.

Farmers erected, last year, farm buildings valued at one and one-half million dollars.

MANITOBA LANDS—For sale by the Provincial Government. Over 1,600,000 acres of choice land in all parts of the Province are now offered at from \$2.00 to \$5.00 per acre. Payments extend over eight years. **Special Attention** is directed to 500,000 acres along the line of the Manitoba and Northwestern Railway at \$3.00 and \$3.50 per acre.

FREE HOMESTEADS are still available in many parts of the Province.

For full information, maps, etc., **FREE**, address **J. A. DAVIDSON**, Minister of Agriculture and Immigration, Winnipeg, Manitoba.
Or **C. H. JEFFERYS**, Manitoba Emigration Agt., Union Station, Toronto, Ont.

THE FAVORITE ROUTE

To **New York** and
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GRAND TRUNK RAILWAY

in connection with the

LEHIGH VALLEY RAILROAD

Route of the "Black Diamond Express," handsomest train in the world.

Leaving **Toronto** daily (except Sunday) at 9 a.m., **Hamilton** 9:55 a.m., arrive **New York** 10:08 p.m.

Fast Night **New York** and **Philadelphia** Express, leaving **Toronto** 6 p.m., daily, arrive **New York** 9:17 a.m., **Philadelphia** 5:56 a.m.

Pullman Sleepers from **Toronto**, **Hamilton** and **London** to **New York**, and **Buffalo** to **Philadelphia**.

Call on **Grand Trunk Ticket Agents** for tickets and further information, or address

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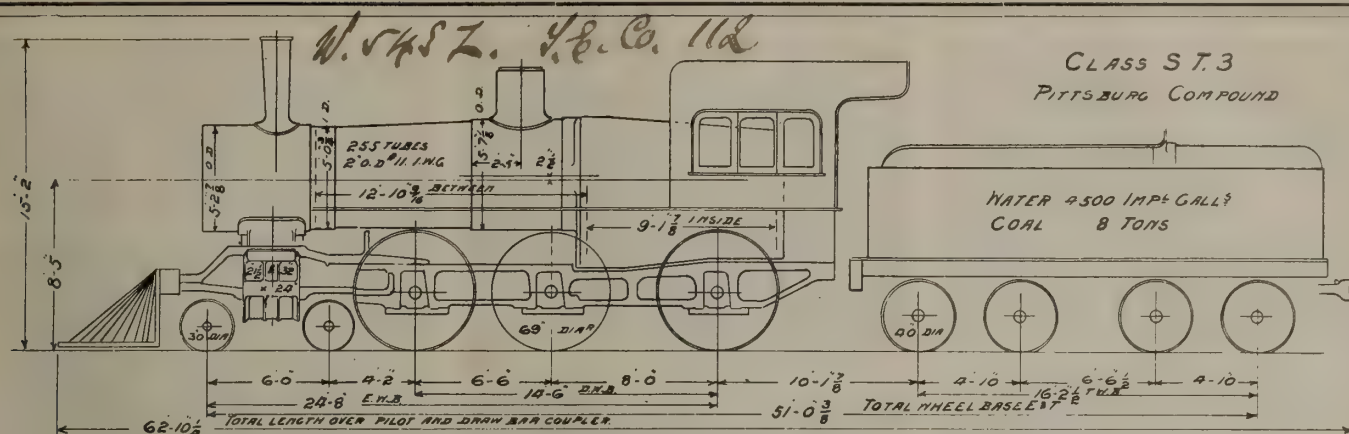
sell through tickets to the Old Country, cheaper than if passengers bought railway tickets to New York or Montreal, and then re-booked.

They also sell prepaid tickets to passengers coming from the old country, cheaper than the rate obtainable in Europe, and on favorable terms.

Apply to any agent Port Arthur and west, or to

W. P. F. CUMMINGS,

C.P.R. Offices,
WINNIPEG.



CANADIAN PACIFIC RAILWAY COMPOUND PASSENGER LOCOMOTIVES NOS. 224 TO 227.

tinted ceiling. The roofs are of the elevated type, which are known in the U.S. as the monitor roof. Each car is so designed that the dining-room or cafe is at one end & the parlor at the other, with the kitchen & the waiters' room in the centre. The dining-room is capable of accommodating 24 people at the tables. The tables are not quite so large as the ordinary double table nor so small as the single table, but each is commodious enough for 4 persons. The leather-bottomed chairs with their polished oak frames look very pretty. The windows are large & provided with curtain hangings & roller blinds, & the floor coverings are Wilton pile. The transoms of embossed glass & other decorations, while in no way fantastic, are very artistic & in good taste. The parlor is furnished with 12 large revolving chairs upholstered in green figured plush, with a sofa to match, capable of affording seating accommodation for 3 persons, or of being used by an invalid when required for that purpose. Between each 2 chairs a small movable table can be placed for the convenience of those who desire to have light refreshments served there in preference to going in the dining room or who wish to engage in games for recreation. Two features in the interior of the cars are noticeable. One is the idea of perfect harmony which the designer has deftly carried out, & the other is the ingenuity displayed in utilizing every inch of space to the best advantage. Even the corners, which under ordinary circumstances are unoccupied, have been utilized as cupboards, with ornamental facings, semi-circular in shape, & in no way suggestive of cupboards until opened by the attendants. The lavatories & ladies' & children's toilet arrangements are in a manner unique & equipped with the latest modern devices for comfort, & here, too, it is observable that no space has been wasted. The kitchen with its coal range & large refrigerators through which the cold air circulates from top to bottom & from side to side through numerous small channels is de-

serving of notice. There are double sets of hot & cold water taps, the water being drawn from large cisterns above the kitchen range, but separated from it by galvanized iron canopy which keeps down the heat. The ice boxes, the requisites for cooking & washing, the arrangements for the hanging of food, & preparations of food, the pantries & cupboards are all as perfect as can be devised. No essential has been overlooked, not even the patent swill which carries off the waste water & prevents it dripping down on the kitchen floor. Away from the kitchen & the not less complete waiters' room adjoining is the cupboard for liquid refreshments, which is also fitted with ice boxes & receptacles for the bottles.

Canadian Pacific Railway Equipment.

A handsome official car, the Manitoba, was recently built at the Co.'s Hochelaga shops for President Shaughnessy.

No new locomotive work has been done in the Montreal shops since June. An order was placed for 10 consolidation locomotives, but it has not been proceeded with on account of the boiler maker's strike.

The 3 Atlantic type locomotives on the Montreal-Ottawa short run are doing the passenger service very easily, making the 111.4 miles in 2 hours & 20 minutes. They can easily do it in 2 hours, & probably in 1 hour & 50 minutes if required.

No passenger cars are being built by the Co. at present. At Perth work is being done on replacements of freight cars, & about 150 box & stock cars are being built. In the meantime further orders have been hung up owing to labor troubles.

A recent press despatch from Montreal stated that a dining car 70 ft. long, & one half of which was used as a parlor car, had been placed on the Imperial Limited. We are informed that this is incorrect, & that the Co. does not own a dining car divided in this way.

The Richmond Locomotive Works has com-

pleted delivery of the 12 compound consolidation locomotives ordered by the Co. Dimensions & an elevation of them were given in our last issue, pg. 202. Twelve other consolidation engines have also been received during the year from another works.

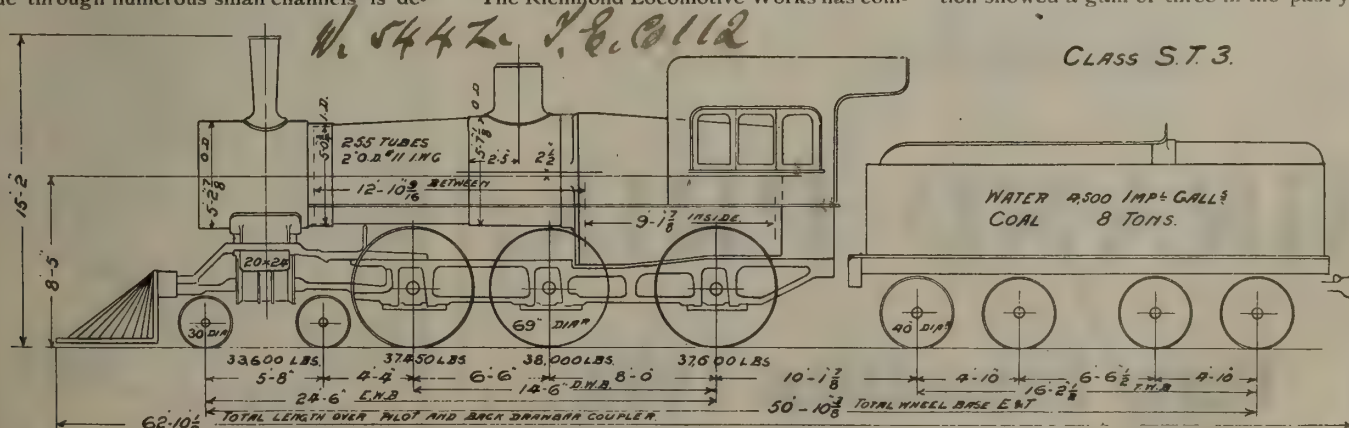
Between Nov. 1, 1899, & June 30, 1900, the Co.'s Montreal shops turned out 28 new locomotives, 19 for passenger service, 6 heavy shunting & 3 very heavy shunting. Of the passenger locomotives 15, or nos. 209 to 223, are simple, & 4, or nos. 224 to 227, are compound on the Pittsburg system. Of the number mentioned 19 were turned out during the first six months of this year. Elevations of the simple & compound passenger engines are given on this page. In addition to the dimensions, &c., shown on the diagram, the following apply to the simple locomotives:

Heating surface, tubes	1,717 sq. ft.
" " fire box	155 "
" " total	1,872 "
Grate area	32.25 "
Working pressure	200 lbs.
Steam ports	1 ft. 6 in. x 1 1/2 in.
Exhaust ports	1 ft. 6 in. x 3 in.
Balanced slide valve	
Travel of " "	5 1/2 in.
Crank pins, main	5 1/2 in. x 6 in. & 6 in. x 4 1/2 in.
" leading	4 in. x 3 1/2 in.
" trailing	4 in. x 3 1/2 in.
Driving journals	8 1/2 in. x 10 in.
Engine truck journals	5 in. x 8 in.
Tender " "	5 in. x 9 in.
Engine truck swing bolster	
Tender frame, steel	
Total weight engine	146,650 lbs.
" engine and tender	267,150 lbs.

These locomotives are giving very satisfactory service.

Canadian Electrical Association.

The annual convention of this Association was to have been held in Ottawa in June, but owing to the disastrous fire which occurred there in April it was impossible to carry out the proposed arrangements, & the convention was therefore held at Kingston on Aug. 29, 30 & 31. The membership of the Association showed a gain of three in the past year.



CANADIAN PACIFIC RAILWAY SIMPLE PASSENGER LOCOMOTIVES NOS. 209 TO 223.

The President, A. A. Dion, in his annual address, made the following references, among others, to the developments of the past year:—

Some steam railways have been converted into trolley lines. Electric railways have been extended far out of cities, equipped with heavier rails, better rolling stock, larger generators, & more powerful motors, & higher speeds have prevailed. In the telegraph & telephone fields the past year has witnessed important extensions & improvements to existing systems. Among the many important works of the year the following may be mentioned:—

Extensions of the Metropolitan Ry., of Toronto, to Newmarket, 30 miles distant.

Extensions of the Ottawa Electric Ry. to Britannia on the Bay, & to the Dominion rifle ranges.

The conversion of the steam railway from Quebec to St. Anne de Beaupre, some 30 miles.

The adoption by the Montreal St. Ry. of electric power from Chambly, Que.

The extension of the Government telegraph system to the Yukon district, 600 miles, & along the north shore of the lower St. Lawrence for 300 miles down to Labrador.

The substitution of storage batteries & dynamos for chemical batteries in the plants of the G.N.W. & C.P.R. telegraph companies at several places,

The complete renewal of the Bell Telephone Co.'s plant at Ottawa, introducing the "central energy" system. The complete reconstruction of its lines there & in the

places, & the extension of its long distance system in all directions.

The following officers were elected: President, A. A. Dion, Ottawa; 1st Vice-President, E. E. Cary, St. Catharines; 2nd Vice-President, P. G. Gossler, Montreal; Secretary-Treasurer, C. H. Mortimer, Toronto; Executive Committee, J. J. Wright, Toronto; O. Higman, Ottawa; A. B. Smith, Toronto; D. R. Street, Ottawa; B. F. Reesor, Lindsay; W. H. Browne, Montreal; J. Yule, Guelph; F. W. Simmons, Kingston; W. J. Camp, Montreal; E. Slade, Quebec.

The convention for 1901 will be held in Ottawa, probably in July.

Condition of Operation of Street Cars in the City of Quebec.

By D. E. Blair, B.Sc., Chief Electrician
Q. R. L. & P. Co.

The following paper was read at the recent Convention of the Canadian Electrical Association:

Of all financial undertakings, none, perhaps, depends more upon the nature of local conditions than does the successful development of a city street railway system, and for this reason it may be of interest to the members of this Association to have before them a more or less general description of the difficulties encountered & overcome by those responsible for the development of the Quebec Street Railway.

Quebec, as a city, has many distinctive features that are not to be found in any other city in America, & the stranger within its fortified walls is very soon struck with the unique fashions, methods & temperament of the quiet people who make up what may be called the native population, numbering about 75,000, & of which about 65,000 are French-speaking.

When the construction of the road was first contemplated by those responsible for the promotion & fulfilment of the scheme, there existed certain unpromising conditions which tended to arouse the doubts of many as to the feasibility & possible financial success of the enterprise. Of these I might mention a few at random. Business, in general, is carried on in a very quiet & matter-of-fact way, & an observant critic does not notice the hustle & bustle so common in most modern cities of this continent. The salary of the clerk & the wages of the laborer are moderate, & the average individual very seldom seems inclined to do any more than he is paid for. The natural result of this state of affairs is that the electric street car was not likely to be looked upon as a valuable & indispensable time saver, as well as a welcome convenience, but rather as a luxury to be enjoyed by those who could afford it.

The manufacturing interests of the city are limited, & further development along this line is hindered by the somewhat strict conservatism of capital. Further, the average laborer or even expert workman is the proud possessor of a large family, several of whom are perhaps engaged in the same work as him-

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self, & he finds it convenient & economical to live near his work, as rent in the manufacturing districts is very reasonable. The city is very compact & densely populated, being furthermore divided into certain sections which are practically self-contained municipalities. Public entertainments & social functions were very little appreciated or patronized, & the principal streets seemed almost deserted after 9 p.m. Although these conditions may have no direct bearing on the practical expenses of construction & operation, they were certainly not in favor of the credit side of the prospective railway company's cash book.

The more formidable objections, however, were of a practical nature. Five years ago, & even less, it was considered impossible that anything that looked like a street car could ever climb the steep, narrow & winding thoroughfares that lead from the water's edge to the highest points of the solid mass of rock upon which the city is built. Besides this, the heavy snowfalls, coupled with the narrowness of the streets, were likely to be a great hinderance to the service, but in spite of everything, the completion of the road was finally rushed through, & it has now been proved that the limiting conditions of the street railway operation were not overstepped in the bold undertaking which has given the people of Quebec a reliable & efficient means of transportation. The city has improved wonderfully since the inauguration of the road, & promises to become, before long, as wide-awake & progressive a centre as any in the country. Even theatrical entertainments have become more or less popular & everything seems to be moving at a faster pace than heretofore. On Nov. 1, 1896, was commenced the laying of the rails through the main streets of the city, & on July 1, 1897, the road was open to traffic.

SPECIFICATIONS of track were as follows:—72 lb. 6" steel T rails in 30 ft. lengths. Standard gauge laying on 7" ties at 28' centres. Each joint to be double rounded by two-oo solid copper wires in Eclipse copper bonding caps, these to be tinned, & ends of wires riveted on outside of rail. Double cross bands to be placed at every 5th joint—150 ft.

OVERHEAD CONSTRUCTION.—Tubular poles 28 ft. long, weighing 700 lbs., & spaced 90 ft. apart, are used throughout. Insulation is of Dirigo type, & trolley wire no. 00 hard-drawn. Span wires of standard galvanized steel wires 3/8" in diameter. Lightning arresters of non-arc type. All construction is elegant & of a substantial nature. Altogether there are 10 miles of span wire construction & 2 1/2 miles bracket.

CAR SHEDS.—Of these there are two, one in Upper Town, 210x120 ft., having 14 tracks & 7 doors, where all cars in service are laid up at night. The other is in Lower Town, & is used for storage purposes only. The capacity of the working car shed is 52 cars, & here all repairs are done. There are 7 floored pits communicating with the machine & blacksmith shops underneath. It has been found cheaper to manufacture most of the repair parts than to purchase them from supply dealers.

PAVING.—At this time all streets, without exception, were covered with a generous laying of macadam. Within the last two years, however, a great improvement has been made in this respect on nearly all the streets through which the lines run. All macadam was removed to a depth of about 12", leaving the ties completely exposed, & these were then filled in with concrete to within about 4" of the top of the rail. The facing of the new pavement throughout the city now consists of Scoria blocks between & 8" beyond the rails, while the remaining strip of roadway is filled either with asphalt, asphalt brick, or Scoria blocks, according to the grade of the street.

In Upper Town, the residential district of the better class of people, the streets were nearly all wide enough to permit of a double track, but even here it was found necessary to run through certain sections on single track. Lower Town, the business section of the city, is a semi-circular strip of varying width, & of a practically level ground which is surrounded on the outer edge by water, & lying beneath the cliffs which mark the boundary of Upper Town. Here the lines are all single track with the exception of one section, where two parallel streets converge into one wide street 1/4 mile in length. The main street, which runs through the entire length of this section, is about 2 1/2 miles long, & is so extremely narrow in places that there is hardly room for an ordinary vehicle to squeeze past on either side of a car, on the single track in the centre of the street.

The return line is run through a maze of narrow & unsymmetrical side streets, which seem to run in almost any direction until they form a junction at an oblique angle with one of the largest arteries, thereby losing their identity. On one section of the line, one mile in length, there are no less than 11 curves of from 35 to 40 ft. radius at intersections of about 90°, one of which requires a reverse curve of 40 ft. radius. On all these streets the inner rail is placed within 2 ft. of one sidewalk in order to leave room for single vehicles to pass a car on the other side.

The Upper and Lower town lines are connected by two cross town lines which ascend obliquely along the face of the cliff. One of these, the Green Line, runs through the public thoroughfare which, though very steep, is yet feasible. The actual length of this line is 3,440 ft., & the difference of level between junctions is 172 ft., which is equivalent to an average grade of 5%. The total length is made up of sections of 200 ft., 12 1/2%, 100 ft. of 10%, & 600 ft. of 9.5% grades, the rest of the line being nearly level. All these grades have sharp curves in their lengths, but the most difficult to operate is the first. This one begins to rise at a gradient of 11 1/2%, & terminates at 14.15%, there being a 40 ft. rad. curve at the top, of which half is on the heaviest part of the grade.

The second cross-town line runs for a certain distance down Palace Hill at an average grade of 11% & then turns off the public street at an angle of 80° on to a steel trestle which runs parallel with the face of the cliff at a gradient of 7.5% for 800 ft. The total length of this line is 1,300 ft., with average gradient of 6.85% & a maximum of 12%, difference of level being 89 ft. One disadvantage in the operation of this line is, that when a car leaves the trestle to take the 11% grade, it is running at half speed, & must be accelerated on grade. This means a very heavy drag on the motors for the first 50 ft. of the climb.

CAR SERVICE.—The Upper Town service consists of a double belt line, 3 1/2 miles in circumference, with from 4 to 7 cars running in each direction on a 4 minute headway in summer, & 5 minutes during the winter. Schedule speed on all lines is approximately 8 miles per hour, except for a few short stretches of level; the total length of this belt is layed on streets having a gradient of from 4% to 8%.

In Lower Town there is but a single belt line, both branches of which are intersected by the cross-town lines. Cars running west are for most of their run within one block of those running east. Here, also, cars are run on a 4 minute headway, & the service requires from 8 to 10 cars. Free transfers are issued from one belt to the other over the cross-town lines. These are run separately in winter, but two sides of a double rectangular belt line in summer. Both tracks are single, & crossings are made at turnouts.

Strict regulations govern the operation of cars on grades & sharp curves. On some of the grades stop-boards are placed top & bot-

tom, & the motorman cannot proceed until signalled by the conductor. Speed down grade must not exceed 4 miles per hour. As a result of these precautions, runaway cars are very rare, & have never been attended by any serious consequences. The average number of cars in regular service during the summer months is about 35, & in winter about 30.

BRAKES.—In every city of grades, such as Quebec, the system of braking should be of special interest, yet hand-brakes are used throughout, the effective leverage being 100 to 1. The brake shoes in use are of very soft cast iron, & it has been found that the retarding force due to the application of this shoe is much more evenly supplied, & that the co-efficient of friction is higher under all conditions than it is when hard cast iron is used. This is especially the case in frosty or snowy weather. New shoes weigh 19 1/2 lbs. & wear down to 4 1/2 lbs. Average life is 6,150 miles, or 410 miles to the lb. of wear.

WHEELS.—All wheels used are of ordinary chilled cast iron 33" diam., weighing 425 lbs. each, & mounted on 4" steel axle. Of these removed from cars during the first three years of operation there is not a great proportion of "flats," as will be noticed from the accompanying table:—

Wheels removed.....	125 pairs	
Of these		
Worn out.....	94 "	75.2%
"Flats".....	23 "	18.4%
Broken Flanges.....	8 "	6.4%
Average life, 24,800 car miles.		
Maximum life, 49,000 car miles (reached by 10 pairs).		

CAR EQUIPMENT.—The car equipment consists of: Thirty-five 28 ft. double vestibule closed cars, weight fully equipped, 14,500 lbs., seating capacity, 30; 24 double & open cars, weight 16,500 lbs., seating capacity, 50; 6 double ended snow sweepers; 2 double ended wing plows; 1 street sprinkler; 1 converted horse car.

ELECTRICAL EQUIPMENT.—The electrical equipment is standard throughout on all rolling stock. It consists of 124 no. 12 A-30 horse-power motors; 124 no. 28 A controllers; 62 sets controlling resistance. All closed cars are fully equipped & in service during 12 months of the year, & the extra equipment required for sweepers & snow plows during the winter is borrowed from the open cars. The sweeper & plow equipments are necessarily very much over-loaded at times, & it will be of interest to some here present to know how they have stood the hard usage.

OVERLOADS ON MOTORS.—An overload of 100% for several minutes at a time has often been carried by these during heavy snow storms, & a sweeper will sometimes burn 5 or 6 no. 13 B. & S. copper wire fuses, or in other words draw from 200 to 250 amp. at 520 volts before it can get past a difficult spot. This extremely hard usage does not seem to have any very bad effects beyond a temporary softening of the armature insulation, & sometimes the loss of a certain amount of solder from the commutator connections, & the management are proud to say that they have not had a single armature burned out since the road has been in operation, in fact the only trouble they have ever had with an armature is that in two cases the insulation was scraped off the wire by rubbing against the pole pieces in consequence of a defective bearing. This is not a bad record considering that there were 124 of them in use. There has never yet been a commutator lost, or even has it been necessary to repair one, apart from resoldering a few melted connections, & the heaviest wear on any diameter up to date is 3/8 in., & the average wear taken from the first 28 closed cars in operation is 22 ins. on the diameter after having made an average run of 71,800 miles. There has not been a commutator "flashed" or "bucked" in the past 18 months, & this, perhaps, is largely due to the excellent quality of brush used, as well as to the constant care that they receive.

CARE OF MOTORS.—It has always been the practice to send an armature to the lathe at the first sign of a "buck," & it has been found that this is absolutely the only way to prevent a re-occurrence of the trouble. A sharp eye is kept on the brushes to see that they do not wear down too far or become gripped in their holders, & commutators are cleaned & sandpapered about once a week with no. 0 sandpaper, although it is quite common for a commutator to keep a nice chocolate glaze for over a month without being touched. The commutator is the most delicate & troublesome part of any electric equipment, & there are two or three more points which ought to be strongly recommended in its care:

1st—To send it to the lathe before it has worn down too far. Just as soon as a slight shoulder is formed at each side of the wearing surface, the brush is lifted by the end play of the armature & unnecessary & expensive sparking is the result. Further, the copper segments are rarely of a uniform boldness throughout, & the least inequality of wear soon develops into a low spot on the commutator.

2nd—It is very important that the brush springs be set at the proper tension, & it is easy to make a rough comparative test of this statement with no other tools than a pair of calipers or steel tape line & an angler's spring balance. It will be found that too light is just as serious a defect as too heavy a tension, if not more so. In one case excessive wear is due to sparking & probable "flashing," & in the other to actual friction.

3rd—See that brush-holders are accurately aligned so as to divide the current equally between the two circuits of the armature. If the brushes are but the thickness of one segment

out of place, one is liable to be notified of the fact at the first heavy overload on the motor. Of course a great deal depends upon the quality of brush used, & cost price of this article should not be considered.

The brush used here averages a life of 12,600 car miles & costs 15c. a piece, which is more than most brushes of this size on the market, but let any one just make a simple calculation to see how many times the difference in the price of the brush goes into the saving effect by prolonging the life of a commutator several years. The cost of renewing one commutator would keep a 50 car equipment in brushes for two years.

I have now to apologize for having perhaps tired you with detail, but I feel that a great deal more could be said on this subject if time & courtesy permitted.

Some trouble has been experienced during the snow storms of winter by the grounding of field coils, but means have been found to effectively prevent this in future. I might here mention that during 12 hours of a cold dry snow storm, when light particles of snow are flying about, 2 or 3 gallons of water are sometimes collected in the bottom of the motor casings. Water & slush in the spring time have given no trouble.

A word about controllers. Aside from the burning out of a couple of magnetic blow-out coils, there have never been any repairs made on any of the 124 controllers in service beyond the renewing of the sparking tips of the drum, which is done about once in two years, at cost of about 50c. a controller. Here again are the results attained by vigorous inspection & careful cleaning each night. Apart from the nightly inspection it is the practice of the road to thoroughly overhaul every car

once in every six weeks. This work is done in day time. Bearings & armatures are examined, brush springs set, brake rigging adjusted, & journal boxes examined & renewed if necessary. As a result of this routine work, which costs but little, it is seldom that the service has to suffer the annoyance & blockade of traffic caused by a disabled car on the road. It can be safely said that there are not more than 2 or 3 cars ever pulled out of service for any reason whatever from early spring to late in the fall. In winter the number is somewhat greater.

CURRENT CONSUMPTION OF CARS ON GRADES.—The current required to get a loaded car up the steepest grades on a good summer rail, is practically constant & well within the overload capacity of the car motors. The maximum amount usually drawn from the line at 520 to 540 volts under such conditions is rarely above 125 amperes, & that for a short time only. The average current is from 60 to 80 amperes per car.

Just as soon as the appearance of snow or ice on the rail has to be considered, the ascent becomes a more serious question. Wheels begin to skid & the car loses momentum, then sand is applied, & the sudden overload on the motors as the wheels take a grip is often beyond the capacity of the heaviest fuse wire it is safe to use on the car equipments, viz., 14 B & S. This wire will carry 180 amperes for several minutes in winter time, & 200 amp. for about 10 seconds, & this will give a rough idea of the power required. The rated capacity of the motors is 50 amp., so that when running on the parallel connection the rated load per car would be 100 amp.

In other words, every equipment on the road has frequently to stand each day an

C. P. R. LANDS.

The Canadian Pacific Railway lands consist of the odd-numbered sections along the Main Line and Branches, and in Northern Alberta and the Lake Dauphin District. The Railway Lands are for sale at the various agencies of the company in Manitoba and the North-West Territories at the following prices:

Lands in the Province of Manitoba average \$3 to \$6 an acre.

Lands in Assiniboia, east of the 3rd meridian, average \$3 to \$4 an acre.

Lands west of the 3rd meridian, including the Calgary District, generally \$3 per acre.

Lands in Northern Alberta and the Lake Dauphin District, \$3 per acre.

TERMS OF PAYMENT.

The aggregate amount of purchase money and interest is divided into ten instalments, as shown in the table below; the first to be paid at the time of purchase, the second two years from the date of purchase, the third in three years, and so on.

Interest on the outstanding purchase money is payable in one year, except in case of an actual settler who breaks up at least one-sixteenth of the land within that time. No rebate of interest is allowed on hay or grazing lands.

The following table shows the amount of the annual instalments on a quarter section of 160 acres at different prices under the new conditions:

160 acres at \$3.00 per acre, 1st instalment \$71.90, and nine equal instalments of \$60.
160 acres at \$3.50 per acre, 1st instalment \$83.90, and nine equal instalments of \$70.
160 acres at \$4.00 per acre, 1st instalment \$95.85, and nine equal instalments of \$80.
160 acres at \$4.50 per acre, 1st instalment \$107.85, and nine equal instalments of \$90.
160 acres at \$5.00 per acre, 1st instalment \$119.85, and nine equal instalments of \$100.
160 acres at \$5.50 per acre, 1st instalment \$131.80, and nine equal instalments of \$110.
160 acres at \$6.00 per acre, 1st instalment \$143.80, and nine equal instalments of \$120.

DISCOUNT FOR CASH. If land is paid for in full at time of purchase, a reduction from price will be allowed equal to ten per cent. of the amount paid in excess of the usual cash instalment.

Purchasers paying any instalment, or more, one year before the date of maturity, will be allowed a discount on the amount of the instalment or instalments so paid at the rate of six per cent. per annum.

Interest at six per cent. will be charged on overdue instalments.

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Cleveland Elevator Company's Elevator, Cleveland, O.500,000 "
Erie R. R. Transfer & Clipping House, Chicago, Ill.	100 cars in 10 hrs.
Manchester Ship Canal Co.'s Elevator, Manchester, Eng.1,500,000 "
Burlington Elevator Co., Peoria, Ill.500,000 "
Canada Atlantic Railway Elevator, Coteau Landing, Que.500,000 "
Northern Grain Co., Manitowoc, Wis.1,350,000 "
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overload of from 50 to 120%. These figures, however, are yet too low for the current consumed at times by the driving motors on the sweepers. On these there has been frequently measured an overload lasting an appreciable time of 180% to 200%. Apart from these sudden maxima, the average load distributed between the two motors sometimes averages 150 amp. for hours at a time, including several short periods of comparative rest. Some, I know, will say that it is extremely bad practice to strain an equipment to such an extent, but, without denying the charge, it may be said that these sweepers have cleaned over 6,000 miles of track every year for the last three years, & the only mishap which occurred to any one of them during the third year of their operation was the grounding of one field coil, this too in spite of the fact that they were on one occasion running for 106 hours continuously, each one wearing out 3 or 4 sets of brooms during that time. On several occasions they were running continuously for two or three days, except for an occasional stop of an hour to renew the brooms.

Curve no. 2 shows the average power required by each car in service during each month of the year. These curves are calculated from the readings of an integrating wattmeter in the central station.

The total cost of maintenance of electric equipment per car mile per year is 17c.

EFFICIENCY OF MOTORMEN. The car service calls for a working staff of 70 conductors & as many motormen. All motormen before being accepted on the road must go through a period of training averaging from three weeks to a month. Part of this time is spent on the road in the company of a good regular motorman, & at least a week is spent in the car sheds, where the novice acts as helper at nominal wages. He is then examined as to his knowledge of the road, car equipment & regulations. Very little technical knowledge is required beyond a thorough understanding of the different parts of the equipment. As a result of this discrimination against the block-head & the fool, it is a marked fact that on every car in service, "the man behind the gun" knows his business & uses his brains to the advantage of the company.

SNOW AND ICE.—The greatest difficulty encountered by the Railway Co. in its efforts to provide a regular & efficient car service during the winter months, is the clearing away of the snow from the tracks. It is not so much that the snowfall is somewhat heavier than in Montreal & Ottawa districts, as that the extremely narrow strips of roadway either one side of the track or the other, soon become piled up with snow to such an extent that all snow removed by a passing sweeper immediately slides back on to the rails & blocks the passage of the following car.

Another serious disadvantage is that all cars in the city have to run over some sections of single track. This fact requires, of course, that cars shall make regular crossings at certain points, & if one car should be late for—or worse still, not reach—its crossing point, several of the following pairs of cars which cross at the same point will be stalled there until the tangle is straightened out. A delay of this sort is disastrous in many ways, because the leading car, when it gets away, has sometimes to plow its way through a heavy accumulation of snow until it is, possibly, extricated from its sorry plight by a passing sweeper, which has to be signalled & shunted past the waiting cars before it can be of any service. Matters are soon straightened out, but then that sweeper should have been somewhere else & there is more trouble ahead. Just as long as all cars make their proper crossings, no matter if they be a few minutes behind scheduled time, everything works smoothly, and after that, complications seem to increase in geometrical progression.

It is the practice to send out the "wing plows" as soon as a certain amount of snow has fallen, & these follow the sweepers around the whole length of the track, at regular intervals, pushing the snow piles back as far as 6 ft. from the rail where it is possible, although there are miles of track to be kept open where there is less than that distance between the rail & the actual buildings, to say nothing of the sundry poles & sidewalks that necessarily intervene. As the day wears on & the snow still continues to fall, the swing of the plows is limited to 2 ft. & possibly to 1 ft., after which it is a hard struggle to keep everything moving through the rectangular channel four to five feet deep which has been formed by the wing plows in their endeavors to clear the right of way. There are several bad spots at which it is absolutely necessary to keep gangs of snow shovellers at work as soon as the storm reaches any more than even moderate proportions. It has further been necessary on two or three occasions to pull all cars out of service in order to give the tireless sweepers a chance to keep the road open, but only once in 1898 & once in 1899 has the service been entirely blocked, & that for one day only.

Nearly all cars in service now carry side-brooms or flangers about 3 ft. in length, which are set obliquely across the rails about 1 ft. ahead of the front wheels. These consist of cast frame, into which are fastened a number of cuttings from the sweeper brooms about 10 ins. in length. They cost very little & have proved of invaluable service in keeping the rails clear of snow during the hourly or half-hourly intervals between passing sweepers; in fact, the car service very often depends entirely upon these to get through a light snowstorm, a couple of sweepers being sent out, after it is all over, in order to clean up. These long brooms have another great advantage over a narrow steel wire brush in that they keep the snow & ice at each side of the rails at an easy slope toward the bottom, instead of cutting a deep rectangular trough which remains filled with snow after the sweeper brooms have gone over the track. Since adopting these brooms on the road, a marked decrease in the power consumed by the rolling stock during storms is noticed, & a great saving has been effected in the quantity of rattan used by the sweepers for each mile of sweeping. This results from the fact that when the transverse section of the winter road-bed is properly graded the sweeper brooms need not be let down so far in order to clear all snow from the rail, thus saving a great deal of breakage.

The average snowfall in Quebec for the last three years has been as follows: 1897-98, 104.6 inches; 1898-99, 120.6 inches; 1899-00, 100.3 inches.

Curve no. 1 shows the proportion of last year's total fall during each month, also the number of miles covered by the sweepers during each month of the same year. Further data relative to cost of removal will be found beneath. These include all cost of sweeping, shovelling & carting away of snow, as well as the interest, depreciation & maintenance of the necessary equipment.

With reference to the removal of snow, the city by-laws enact "that proprietors or occupants shall remove the snow & ice from their roofs and from the streets, from the street line to the centre of the street, & keep the same within two inches of the pavement."

The by-law granting a franchise to the Quebec Railway, Light & Power Co. enacts "that the Co. shall remove the snow from their tracks & two feet on either side thereof." As the Co. could not see its way to carry out this regulation without having trouble with the proprietors or tenants, it every year makes an arrangement with the tenants on that side of the street on which the Co. throws its snow, to remove the same, paying them at the rate

of 10c. per lineal foot of their frontage, except in places where the snow is known to accumulate, where it pays at the rate of 15c. per lineal foot. Consequently, all the Co. has to do is to throw the snow off its tracks, leaving the proprietors to remove the same along with their own. With this arrangement the proprietors seem very well satisfied.

One can better appreciate the relative magnitude of the snow expenses when told that \$1.54 has to be deducted from the daily gross earnings of every car in service during the year in order to make up the amount.

HEATERS.—All closed cars in service are heated electrically during 6 months of the year, the heaters being divided into 4 sections, 2 on each side of car, each pair being separately controlled. The current consumed by each pair is 4.9 amp., & it therefore requires 9.8 amp. at 520 volts, 5.1 k.w., to heat a car during 4 months of the year when both sides are in use, but during Nov. & April one side is quite sufficient to maintain a comfortable temperature within the thin shell which composes the car body.

Taking the average time of service of car at 18 hours per day, & the actual cost of the extra current required at 65c. per k.w. hr., the cost of heating one car is as follows:—

$$\begin{array}{rcl} 5.1 \times .65 & = & 3.21 \text{ cts. per hour} \\ & & 58 \text{ cts. per day} \\ 150 \times 58 & = & \$87.00 \text{ per year} \end{array}$$

This is equivalent to .204 cents per car mile, & the maxim taught is, "don't use electric heaters in a cold climate unless you have the advantages of an unlimited water-power & station capacity." The interest on first cost, depreciation & maintenance of the heating equipment would not add more than 2 or 3% to the figures.

The electric railway, as well as nearly all lights & motors in Quebec, are operated through a substation within the city, from a power house situated at the Falls of Montmorency. The power house is 150 x 50 ft., & contains the following equipment: 3-600 k.w. 2 phase 66 eye 5,500 volt S.K.C. alternators; 1-750 k.w. 2 phase 66 eye 5,500 volt S.K.C. alternators; 1-600 k.w. double current 273,500 volt generator; 2-30 k.w. bipolar exciters. All the larger machines are direct connected to 52 in. water wheels of 1,000 h.p. capacity each, & operating at a speed of 286 revolutions per minute.

The power is transmitted to the city over 16 wires, carried on 2 separate pole lines. Each machine is fed into a separate circuit at Montmorency, but may be connected in parallel at the substation in the city, the substation consists of a substantial stone building containing the following machines: 2-600 k.w. 2 phase S.K.C. synchronous motors, taking current at 5,000 volts direct connected to 2 500 k.w. 550 volt railway generators, 2-200 k.w. 2 phase 5,000 volt synchronous motors direct connected to 4 125 light multi-circuit arc machines. Besides these are the direct connected starting motors required for the motor-generators, 2 exciters driven by induction motors, & all necessary transformers & switchboards for distributing the current to its various uses.

RAILWAY SWITCHBOARDS.—The railway switchboard contains—besides switches, circuit-breakers, volt & ampere meters & field resistance—1 intergrading wattmeter, 2 recording ammeters, & 1 recording volt-meter.

From the daily reading of the first has been prepared curve no. 2, which shows the current consumed by the railway cars during each month of the year. It will be noticed how much more power is required during the winter than in summer, in spite of the fact that fewer cars are in service, & the car miles run by each are fewer than in the summer. It will also be seen that, during Feb. each car consumes an average of 24 h.p. during a whole day's run.

The maximum overload capacity which the

station is ever called upon to furnish the railway, is about 900 k.w., and a yearly average is about 350 k.w.

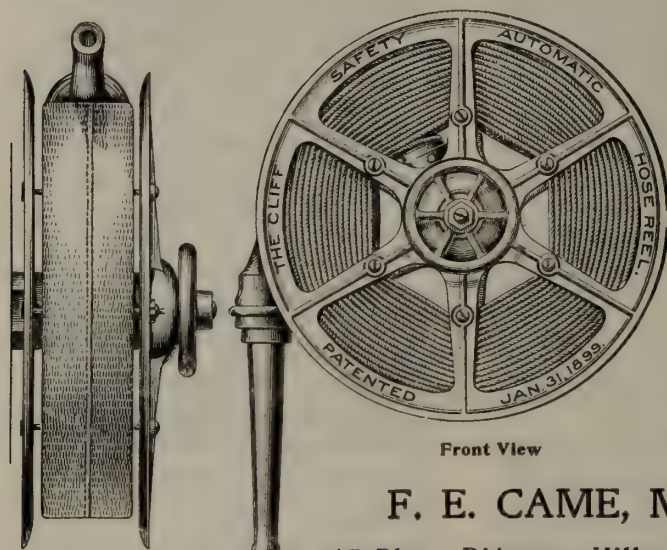
The peak of the summer load very rarely reaches 550 k.w., & is easily handled by one generator, although a 10 or 15% increase

over this load would be very liable to pull the synchronous driving motor out of steep if of long duration.

Time has unfortunately not permitted the preparation of any accurate curves to tell the story of the station's output, but one may

form an idea of the average fluctuations by an examination of the recording ammeter charts on exhibition.

Before closing this very hurriedly prepared



Front View

Side View

THE CLIFF SAFETY AUTOMATIC REEL.

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Opens Valve.

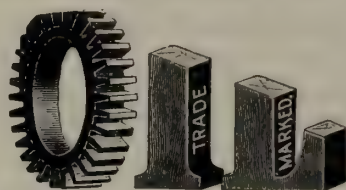
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Arms in Stock.

White Oak Piling furnished promptly.

The Grand Trunk Railway Company of Canada.

NOTICE is hereby given that the Ordinary General
Half-Yearly Meeting of the Grand Trunk Railway
Company of Canada will be held at the City Terminus
Hotel, Cannon Street, London, E.C., on Tuesday the
9th day of October, 1900, at Two o'clock p.m. precisely,
for the purpose of receiving a Report from the Directors
and for the transaction of other business of the Com-
pany.

A Resolution will also be submitted for the approval,
by the proprietors, of the arrangements to be made for
the reorganization of the Chicago and Grand Trunk
Railway Company, including particularly a guarantee,
by the Company, of the interest on the Bonds proposed
to be issued by the new Company.

Notice is also given, that the Transfer Books of the
Company will be closed from Saturday the 15th day of
September, to the day of meeting, both days inclusive.

By order,

C. RIVERS-WILSON, President,
WALTER LINDLEY, Secretary.

Dashwood House,
9 New Broad Street, London, E.C.
7th September, 1900.

THE CANADIAN PACIFIC RAILWAY CO.

DIVIDENDS for the half-year ended thirtieth June, 1900,
have been declared as follows:

On the Preference Stock two per cent.

On the Common Stock two and one half per cent.

Warrants for the Common Stock dividend will be
mailed on or about first October to Shareholders of re-
cord at the closing of the books in New York and Lon-
don respectively.

The Preference Stock dividend will be paid on Monday,
October first, to Shareholders of record at the closing of
the books at the Company's London Office, 1 Queen Vic-
toria Street, London, E.C.

The Common Stock transfer books will close in Lon-
don at 3 p.m. on Friday, 24th August, and in Montreal
and New York on Friday, 7th September. The Prefer-
ence Stock books will close at 3 p.m. on Friday, 31st
August.

All books will be re-opened on Tuesday, and October.

By Order of the Board,

CHARLES DRINKWATER,
Montreal, 13th August, 1900. Secretary.

THE FIRSTBROOK BOX CO., LIMITED.

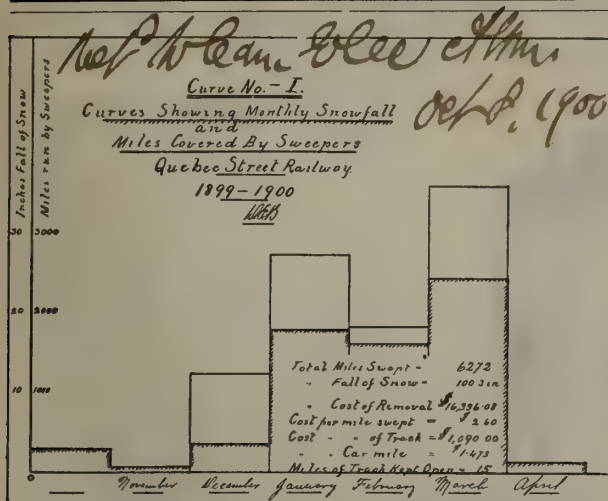
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flowing well on the premises.

TORONTO ENGRAVING CO.
DESIGNERS, ENGRAVERS,
ELECTROTYPERS.
92 BAY ST.



paper, it may, perhaps, be in order to make a few remarks relative to the conversion of the old Q. M. & C. Ry. to an electric suburban line. This excellent roadbed now serves to carry a fast service of electric cars, interspersed with steam trains, which handle the heavy traffic between Quebec & the shrine of St. Anne de Beaupre.

A trolley wire is suspended at a height of 22 ft. above the rail by stranded steel span wires hung from wooden poles, & the rails have been connected with single bonds of no. 00 wire for 26 miles. A copper cable of 300,000 C.M. area runs parallel with trolley wire for most of its length & is connected to the trolley every quarter mile.

This cable is fed at a pressure of 560 volts at 3 points: at Quebec, at Montmorency, 7 miles away, & at St. Annes, 21 miles away from the city, all power of course being generated at Montmorency & transmitted for ends of line at a high alternating tension.

Cars used are 50 ft. over all, & each equipped with four 38 B motors geared to a speed of 45 miles an hour.

On account of the many stops to be made in the length of the line (18), a schedule time of 21 miles in 60 minutes has been adopted. This is quite satisfactory & fast enough, because the line is a very busy one in two ways. The number of passengers carried is beyond the highest hopes of the management, & it would be impossible to run any more trains over a single track & on train orders than are operated at present. There is every prospect of a second track being laid in the near future. The idea of running steam & electric cars is a novel one in this country, but is highly successful in every respect.

In the discussion which followed the reading of the paper, Mr. Blair gave the following further information:—

The road has been operated three years.

The heaviest wire on any commutator is $3/8$ of an inch.

The heaviest grades carry the heaviest traffic in town.

There has not been a commutator flash or buck on the road for 18 months.

The water & slush in the spring-time have never given us any trouble, it is the hard snow in the winter. \$16,300 is the total cost chargeable to snow.

The Co. has no depreciation account, everything goes in to maintenance account. Depreciation & cost of repairs go in together, & the road is kept up to the standard for railways.

In some cases we have to actually cart the snow away to some convenient place for the time being, & then the next day take it away permanently. In almost every case we have to cart it twice. In some cases, without exaggeration, there are 4 ft. of snow above the top of the car; that, of course, has to be shovelled out. A car will run into these drifts.

Anybody who knows Quebec will know the point I refer to, Chateau Frontenac.

The foot passengers have to come in along the car tracks.

The Co. pays the tenants 15c per lineal foot once a year for the removal of snow.

The Co.'s day is 18 hours long.

The power supply is water power.

The rotary converter is used for the railway at St. Anne de Beaupre, where 500 volts are fed into the wire. There are 18 stops made in 21 miles. We have as many trains on now as we can put on in that section. In all probability another line will be laid in the near future.

The pressure on each brush depends on what car it is.

We keep the hill cars & level running cars separate. We run the same car over the hill as on the level, but draw more current than on the level.

We keep records of everything. We keep them by numbers of the car & so forth. The men who do the work keep the records during the month, & I take the whole of them & enter them in my own book once a month.

The Use of the Dynamo and Storage Battery in Telegraph Offices.

*By W. J. Camp, Superintendent C.P.R. Co.'s
Telegraphs.*

Previous to 1870, acid batteries of various kinds were used for main telegraph circuits, & the Daniel form of blue-stone battery for the locals, or sounder circuits. Between 1870 & 1874, what is known as the "gravity battery" was brought into general use. This battery is a modification of the Daniel cell, but the sulphate of zinc & sulphate of copper solutions are kept separate by the difference in their specific gravity instead of by means of a porous cup. This form of battery is very constant & requires but little attention as compared with the acid. To obtain the best results not more than 2 or 3 wires should be worked from each bank, although frequently 10 or more are thrown on one bank of battery. When this is the case the results are unsatisfactory, particularly during wet weather, & when wires of different lengths are combined together. A separate bank is required for each duplex or quadruplex set, & also a local battery for each sounder circuit. It is true that, as each cell gives out about one volt E.M.F., the exact power required for each multiple circuit or local can be very accurately adjusted by adding to or taking off

from the number of cells; & on this account a great many chief operators raised objections to dynamo currents. However, even this advantage has been compensated for.

While the change from acid to gravity batteries effected a great economy in maintenance, and improvement in the working of the telegraph wires, a much greater stride has been made by the introduction of the dynamo & storage battery in telegraphic work. I will deal first with main lines, & then with local, or sounder & transmitter circuits.

About 1880 dynamos were introduced by the Western Union Telegraph Co. at New

York for supplying current to the single working wires. The means for doing this are comparatively simple. Two dynamos are used, each of a voltage high enough for the longest wires; the positive pole of one & the negative pole of the other dynamo are earthed, & the opposite poles connected to two buss wires. The various single working wires are connected to these buss wires, according to the polarity required, through an artificial resistance for each wire. The Western Union in the U.S. & both companies in Canada use incandescent electric lamps for these resistances. The Postal Co. in the U.S. uses German silver wire wound on tin tubes, so designed that, should any heating take place, it is counteracted by a current of cold air which passes through the tube. Additional resistances were inserted on the shorter wires to make all lines approximately of the same electrical length. These resistances were usually of fine German silver wire wound on the handle of a wedge which was inserted with the instrument wedge in the spring-jack of the switch. It has been found much more satisfactory, however, to have several dynamos giving different voltages, & the use of the resistance wedges abandoned.

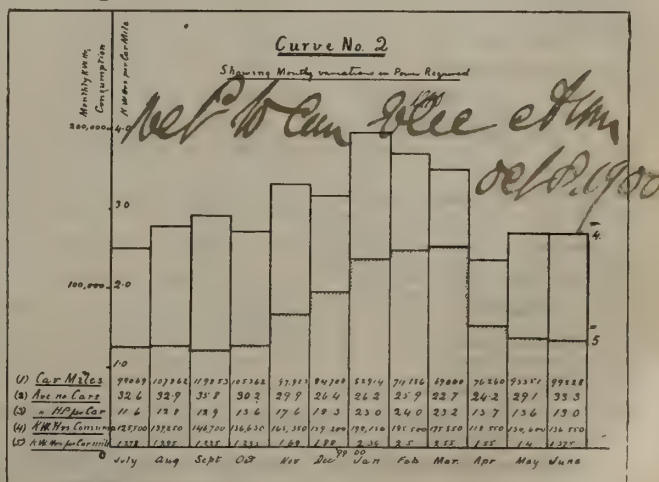
The next step was to apply dynamo power to duplex wires. For many years back the polar duplex has been used all over America. When using the gravity battery the transmitter (pole-changer) was arranged to reverse the poles of a bank of battery from earth to line & vice-versa. This pole-changer required very accurate adjustment in order to reduce the time of reversals to a minimum, the least break in the circuit, or short-circuiting of the battery, being liable to affect the signals at either or both terminals of the line.

For dynamo power the earth connection is omitted in the pole-changer; the armature is connected to the line circuit, the front contact to the negative buss wire, the back contact to the positive, & resistances of 600 or more ohms inserted ahead of each buss wire to prevent arcing at the contacts of the pole-changer.

Then came the application of the system to quadruplex circuits. Great difficulties had to be overcome to effect this. Two entirely different systems are in general use, one by the Western Union & G.N.W. Telegraph Companies & the other by the Postal Telegraph Co. The C.P.R. Co. uses the systems at Toronto & Montreal, & the Postal system at other W. U. points.

A few general remarks with reference to the duplex & quadruplex as worked with gravity batteries may be of interest at this point to those who have not read up the subject.

Duplex is a system by which two operators can transmit simultaneously in opposite directions. This is attained by winding the receiving relays with two coils of wire in opposite directions, one winding being connected to



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Sick benefits, when required, cost extra.	

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- 2.—A Total and Permanent Disability Benefit of one-half of face value of policy, with exemption from further payment of premiums or Court Dues.
- 3.—An Old Age Benefit consisting of exemption from payment of premiums and Court dues after age 70.
- 4.—An Old Age Disability Benefit of one-tenth of face value of policy payable yearly for ten years, on being declared totally and permanently disabled by infirmities of age after the seventieth birthday.
- 5.—An Old Age Pension payable during disability, which may be taken as a substitute for the Old Age Disability Benefit.
- 6.—Free Medical Attendance by Court Physician where not dispensed with by Court by-law; also trained nurses in certain cases.
- 7.—A Sick Benefit of \$3 to \$5 per week, subject to provisions of the Constitution and Laws of the Order; optional, and when taken costs extra.
- 8.—A Burial Benefit of \$100 at death of a Pensioner.
- 9.—A Funeral Benefit of \$50 at death of a member enrolled in Sick and Funeral Benefit Department.
- 10.—Social and Fraternal Privileges of the Court Room.

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Year.	Total Membership.	Benefits Paid.	Total Surplus.	Surplus per Capita.	Death Rate per 1,000.
1881	1,019	\$ 1,300 00	\$ 4,568 55	\$ 4 48	4.50
1882	1,134	12,058 86	2,967 93	2 61	11.00
1883	2,210	9,493 68	10,857 65	4 91	4.73
1884	2,558	13,914 31	23,081 85	9 01	4.23
1885	3,642	26,576 99	29,802 42	8 18	7.76
1886	5,804	28,499 82	53,981 28	9 30	4.85
1887	7,811	59,014 67	81,384 41	10 44	5.78
1888	11,800	89,018 16	117,821 96	9 98	6.43
1889	17,349	116,787 82	188,130 36	10 84	5.85
1890	24,604	181,846 79	283,967 20	11 54	5.18
1891	32,303	261,436 21	408,798 20	12 65	6.40
1892	43,024	344,748 82	580,597 85	13 49	6.25
1893	54,484	392,185 93	858,857 89	15 76	5.47
1894	70,055	511,162 30	1,187,225 11	16 94	5.47
1895	86,521	685,000 18	1,560,733 46	18 03	5.67
1896	102,838	820,941 91	2,015,484 38	19 60	5.50
1897	124,685	992,225 60	2,558,832 78	20 52	5.56
1898	144,000	1,176,125 14	3,186,370 36	22 12	5.67
1899	163,610	1,430,200 33	3,778,543 58	23 09	6.30

For Further Information Respecting this Great Fraternal Benefit Society, Apply to

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Or Any Officer or Member of the Order.

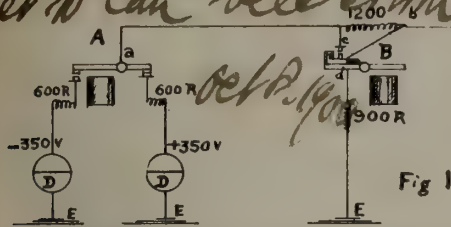


Fig. 1

the line, & the other to a set of resistance coils & condensers which are so adjusted that the electrical length & static capacity are the same as the real line. The home power divides equally, half passing around the core in one direction to the real line, & half in the opposite direction to the artificial line, the result being that the core is not magnetized by it, & is not susceptible to any change in the home power. As the power coming over the line from the distant station only passes through one of the coils, & there is none coming in from the artificial line to counteract it, the core is affected by any change in power at the distant station. The receiver is a polarized relay whose armature closes the sounder when moved in one direction, & opens it when moved in the other. The transmitter is an instrument worked by an ordinary telegraph key & local circuit. It is so arranged that when the key is depressed the negative pole is connected to the line & positive when the key is opened.

Quadruplex is a system by which two operators can transmit one way simultaneously with two operators transmitting in the opposite direction, i.e., four messages can be sent simultaneously on one wire, two in each direction. The arrangement by which two operators transmit in the same direction may be briefly described thus:

A transmits by reversing the polarity to line the same as in duplex, & C receives by means of a polarized relay. B transmits by increasing & decreasing the same power which A is reversing; D receives from him by means of a neutral relay which responds to power of any direction if it is strong enough. The retractile spring of the armature is adjusted so that the weaker power does not move the armature, but when the full power is on the spring is overcome. By double winding both receivers at each end, as explained for the duplex, we obtain "two circuits in the opposite direction."

In order to obtain satisfactory work all resistances must be maintained at their relative length. When using gravity battery transmitter "B" simply adds more cells to "A's" battery, or takes them off when closing or opening his key. A resistance coil to compensate for the internal resistance of the extra battery is automatically cut out, or inserted, thus maintaining the total electrical length of the line from earth to earth.

The W.U. system of transmission is shown in fig. 1. The resistance from A to earth through the dynamo circuits is 600 ohms, no matter which position transmitter A is in. When transmitter B is closed the resistance from B to earth is 600 ohms because the 1200 ohm coil is shunted out by contacts c & the leak of 900 ohms is disconnected at d. The full power of either the negative or positive dynamo goes to line through one of the internal resistances of 600 ohms. When the transmitter B is opened the 1200 ohm coil is inserted between b & c, making the total resistance between b & earth via the dynamo of 1800 ohms. There is also another route to earth, through the leak of 900 ohms. The joint resistance of these two routes is 600 ohms, as found by the formula $\frac{A \times B}{A + B}$ or $\frac{(1200 + 600) \times 900}{1200 + 600 + 900} = 600$, thus maintaining the same resistance between b & earth for all changes.

The amount of power passing b to line is, however, reduced to $\frac{1}{3}$ when transmitter B is

open, first on account of the added resistance of 1200 ohms, & second, on account of the leak of 900 ohms. In other words, when transmitter B is closed, the power passing to line is three times as much as when B is open.

By changing the added resistance to 1800 & the leak to 800 ohms the difference is then as 4 to 1 & the internal resistance still maintained at 600 ohms.

The principle of the Postal system of quadruplex transmission is shown in fig. 2. For the purpose of explanation, transmitter A is shown as two separate instruments worked simultaneously by one key. The one on the left gives 350 volts to the line & the one on the right 100 volts. Opening of the key connects either m or p to line according to the position of transmitter B; closing of key connects either n or o; or opening A gives positive pole & closing gives negative. Closing connects line through b, c, a, to dynamos m or n (350 volts) according to the position of transmitter A; opening transmitter B connects line through b, d, e, with dynamos o or p (100 volts). Thus B transmits by increasing or decreasing the power sent out by A. As the resistances in each of the four leads to the

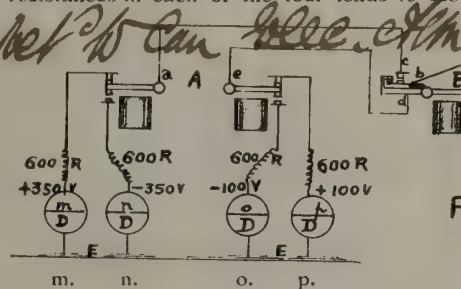


Fig. 2

dynamos are the same (600 to 1000 ohms) the internal resistance from b to earth is constant.

It is hardly within the scope of this paper to compare one system with the other. It is sufficient to state that either system has certain advantages & both give excellent results. The receiving instruments are the same as for gravity battery.

The dynamos are made of sufficient voltage for the longest quadruplex circuit from the office. When the same machines are used on comparatively short circuits a resistance coil of 1000, or more, ohms is inserted between b & the receivers.

We now come to the locals. For ordinary sounder circuits a very simple plan is to use a dynamo of 6 volts & connect all sounders in multiple. The sounders are wound to 20 ohms resistance; but in nearly every office where dynamos are used there are also quadruplex or duplex sets, & it is often necessary to connect these as repeaters. There are a number of systems, but I will only describe the one in use by the C.P.R. This is, I think, the most simple yet designed. It is shown in fig. 3. Each half quadruplex or half repeater is treated as a duplex set. All sounders & transmitters are wound to 20 ohms &, by resistance coils, each local circuit is brought up to 100 ohms. The dynamo gives from 20 to 25 volts. The former is found to be sufficient. The figure shows the instruments in a normal position, except that the transmitter wedge should be inserted in the spring jack. Starting from the dynamo the receiving circuit passes through the relay contacts, 20 ohm sounder, 80 ohm coil, earth to dynamo, the leg through jack being open at c. The sending circuit is from dynamo through switch b, key, 20 ohm transmitter, switch a, d, wedge, back contact of jack, 80 ohm coil, earth to dynamo.

To work as repeaters the wedges of the two sets are exchanged, that of no. 1 set being inserted in no. 2 jack & no. 2 wedge in no. 1 jack; the table switches a & b on each set are reversed.

The circuit then is, earth, dynamo, relay contacts, 20 ohm sounder, 80 ohm coil, earth; also from relay contact to top of jack, front of wedge of no. 2 set, c, a, transmitter, key, b, d, back of wedge, coil & earth. The circuits from no. 2 set are the same. Any break in contacts of relay opens its sounder & also the transmitter of the other set. Thus signals received from the line on no. 1 set are automatically retransmitted over the line connected to no. 2 set, & vice versa.

To extend the locals of a duplex to a branch office, the loop wedge is inserted in the spring jack on top of the transmitter wedge; switch a is turned up; switch b down. Circuits are then as follows: Receiving side, dynamo, relay, sounder, coil, earth; with leg from relay contacts to top of jack, front of wedge, coil, line, branch receiver & earth. The resistance coil is adjusted so as to make the circuit from wedge to branch earth total 100 ohms including branch sounder.

Sending side, dynamo, b, key, transmitter, a, c, front of transmitter wedge, back of loop wedge, coil, line, branch sounder, key & earth. The resistance from wedge to distant earth is 80 ohms, including sounder. On this circuit the resistance of the transmitter is added, making a total of 100 ohms.

Sometimes the dynamos are operated from a common shaft driven by an electric motor or other power, but the plan most generally adopted is to use motor generators, each machine working independently. In order to

be reasonably certain of a continuous supply of power, spare leads are run to different power stations, & spare machines are also kept in readiness, so that not more than a minute or so is lost at any time.

In cities where continuous power cannot be obtained from at least two different stations, storage batteries are now largely used. Generally speaking, the wiring of a telegraph office, from the discharge leads of a storage battery to the instruments, etc., is the same as for dynamos, but extra switches have to be used for connecting the various banks of battery with the charging or discharging circuits. Various devices are used, but as I consider the C.P.R. system the most flexible, I will describe it only.

At Vancouver & Winnipeg street railway power is transformed by two motor generators; one reducing the power to seven volts of twenty amperes capacity for charging local batteries; & the other to 130 volts, 5 amperes, for main batteries. In Ottawa a 250 volt power is reduced to seven volts for the locals, & the mains are charged direct without reduction. In St. John the 114 volt lighting circuit is used. The locals are in two banks, of two cells each, of chloride accumu-

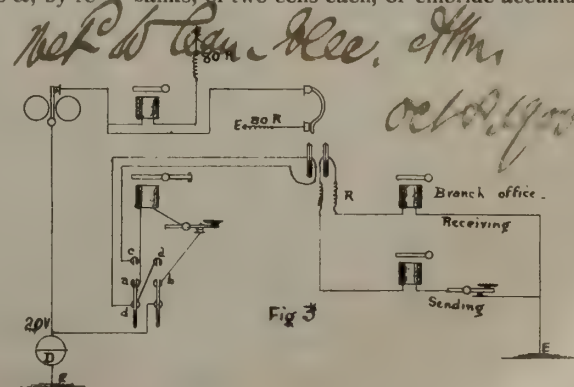


Fig. 3

lator, type E 9, one bank being charged while the other is discharging. There is no dead resistance inserted in the local circuits, as is the case where dynamos are used, extra cells providing the necessary power when quadruplexes or duplexes are extended to branch offices.

The switch for the main batteries consists of a series of spring-jacks and wedges, so designed that the jack is open, & a wedge cannot be inserted when reversed. The cells (which are C 3 type of accumulator) are arranged in banks of 40 or more as needed to meet the requirements of the office, & of a voltage sufficiently below the charging circuit. The negative pole is connected to the top of a wedge & positive to bottom. The wedges are all interchangeable. As many banks as required can be charged simultaneously.

In Canada, the C.P.R. has storage battery plants at Vancouver, Winnipeg, Ottawa & St.

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The President of the G.N.W.T. Co.

Harvey Prentice Dwight, whose portrait appears on this page, was born of New England parents at Belleville, Jefferson County, N. Y., Dec. 23, 1828. He came to Canada in 1847, & secured a position as an operator for the Montreal Telegraph Co. As business increased in Canada West he was appointed Western Superintendent of the Co. In 1881, when the Montreal & Dominion Telegraph Companies were leased to the G.N.T.W. Co., he was appointed General Manager, & in 1892 was elected President of the G.N.W.T. Co. Three years ago, at a banquet tendered him at the Toronto Club, on his completing 50 years of continuous telegraph service, he made a most interesting speech, from which the following extracts in regard to his career are taken:—

I was brought up on a little stumpy, stony, newly-cleared farm a few miles south of Oswego, where my father, with such assistance as I could render him, occupied his spare time in making flour barrels for the mills at Oswego. When about 18 years of age it dawned upon my mind very forcibly that I had better get out & find some way of making a better living, if possible, than I seemed likely to ever make at home. The erection of a telegraph line had just been completed between Oswego & Syracuse, & I made application & obtained permission to enter the Oswego office in order to learn the business of an operator. I had heard about this time that a telegraph line was being built by the Montreal Telegraph Co. in Canada, where I thought I might get employment. After ascertaining the name of the Superintendent, O. S. Wood, I wrote to him applying for employment, & received a prompt reply, in which he asked, as soon as I was able to manage a small office, to report myself, which in due course I did. I came over from Oswego to Kingston on Aug. 27, 1847, where I met Mr. Wood by appointment, & proceeded with him on the same day to Belleville for the purpose of opening an office there on the line which had been erected during that season between Quebec & Toronto, a distance of 500 miles, on which some 12 or 15 offices were being opened. Mr. Wood, I may mention, was the first pupil of Professor Morse, & one of his most intimate friends. We took instruments along with us, & opened the office in Belleville the following day, where I was left in charge, & where I remained for a couple of months. At the end of that time I was ordered to Montreal, to take my place in that office as an operator. In these early days I might say that a telegraph operator was looked upon as of some importance, & the telegraph office a decided curiosity.

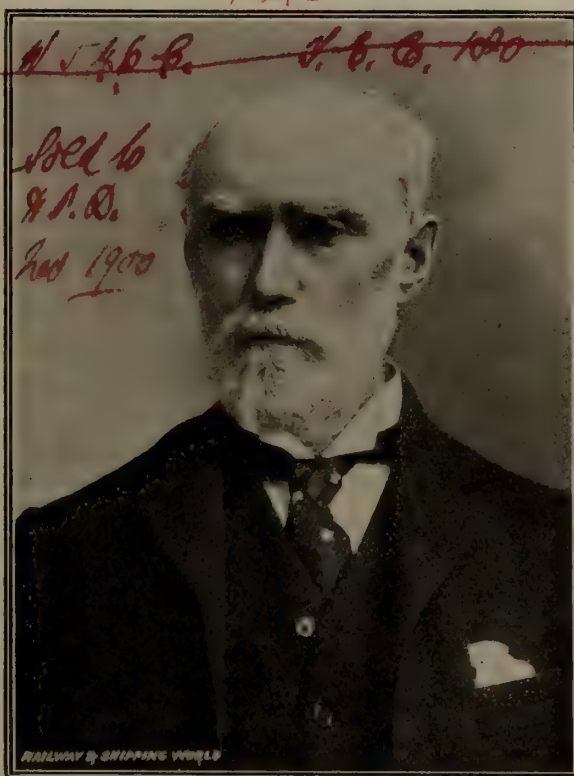
During my stay in Belleville I became ac-

quainted with John Ross, a young lawyer, who afterwards became the Hon. John Ross, who was the first President of the Grand Trunk Ry., & one of the foremost men in Canada. I also became acquainted with Andrew Darling, known then, & for a long time afterwards, as the first & only commercial traveler in Canada, & Mackenzie Bowell, the young editor of the Belleville Intelligencer, now Sir Mackenzie Bowell. A few months ago I received a letter from Sir Mackenzie, in which he wrote as follows:—"Seeing your name reminds me of the time, about 50 years ago,

Holton; Mr. McPherson, afterwards Sir David McPherson; Hon. John Young, & many other men of the day in Montreal, whose messages I handled over the wire, & whose names became very familiar to me, & have remained so ever since. Our staff consisted of four or five persons—our Superintendent, myself as Chief Operator (& sometimes the only one), one or two clerks, & one messenger, a faithful old soldier, who delivered messages with a good deal more reliability than speed.

I remember well being terrified & almost paralyzed one day by the clerk from the outer office, who came rushing into the operating room in an excited manner to tell me that Lord & Lady Elgin had called to see the working of the telegraph, & almost before I knew it they were both beside me as I was sending a message over the line. They were accompanied by Lady Alice Lampton & Lord Mark Kerr. Mr. Wood, our Superintendent, soon came in, however, & relieved me from the duty of explaining to the distinguished party the working of the instruments. Lord Elgin made such an impression upon my mind that I have ever since remembered him as one of the handsomest men I ever saw. I heard him speak upon one or two occasions in Montreal, & made up my mind, & have always thought so since, that he was a very great man. Not long after this visit of Lord Elgin to the office I saw his carriage being pelted by a shower of stones thrown by an excited mob as he was leaving the Parliament House, where he had been to sanction some bills which had been passed by Parliament, & which included what was called the Rebellion Losses Bill, about which there had been great excitement throughout the country. After Lord Elgin's carriage, with its broken windows, had escaped, the mob rushed down the street towards the Parliament House, arming themselves on the way with paving stones picked up on the street, & surrounding the building, stoned the windows—the members still present making their escape in the most disorderly manner—& set fire to the building. I stood in a safe doorway on the opposite side of the street & witnessed the whole scene, of which I retain the most vivid recollection.

The Post Office Department at the time I was in Montreal was in charge of the English Government, & the Postmaster-General, Mr. Stayner, was stationed in Montreal, as I have special occasion to remember. A mail steamer was reported from below in a message addressed to Mr. Stayner, & knowing that this news was being anxiously looked for, on discovering that our only messenger was out, I put on my hat & ran to the Post Office, a short distance up St. James Street, without waiting to put the message in an envelope, & delivered it in breathless haste to the great



HARVEY PRENTICE DWIGHT,

President & General Manager, Great Northwestern Telegraph Co. of Canada.

when you were a telegraph operator in Belleville, when you one day read off from the instrument while I copied down the first telegraph news despatch ever sent over the wires, & which I printed in my little paper."

I took my place as an operator in the Montreal office, & remained there until the spring of 1850. While acting as operator, I also did something as messenger, batteryman, line repairer, & in fact everything that was necessary to be done in connection with the working of the office. During the time I was in Montreal I had occasion to know, as a young man, Mr. Holton, afterwards the Hon. L. H.

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SECOND VICE-PRESIDENT.—A. O. Norton, Coaticook,
Que.

HON. SECRETARY-TREASURER.—Acton Burrows, 33
Melinda Street, Toronto.

NEXT ANNUAL MEETING at Hamilton, Oct. 16, 1901.

man himself personally. Instead of receiving
any thanks, however, for my zeal, I was
treated to the severest kind of reprimand for
the liberty I had taken in delivering the mes-
sage in such an informal manner. It is need-
less to say I never repeated the offence.

In the spring of 1850 I was sent to Toronto
to take charge of the Co.'s business here, &
to be in a position to recommend such exten-
sions in the Province of Ontario as might
seem desirable. During my first year in To-
ronto I sent & received myself on the instru-
ments every message which passed over the
line to & from this point. These messages
were delivered by one small freckled-faced
Scotch boy, with a plentiful growth of hair on
his head, named Robert Easson. I remem-
ber well how he ran with each message which
required to be delivered as if his very life de-
pended upon it. That boy is now in charge
of our Press News Department, & is here
to-night.

I had not been long in Toronto before I be-
gan to suggest to the head office various ex-
tensions of our lines, & as these suggestions
were almost invariably adopted, I grew bolder
& more reckless, until the Head Office began
to get nervous & frightened. It was finally
concluded, however, & I was notified by
Hugh Allan, afterwards Sir Hugh, that I
should have carte blanche to do as I liked, it
only being required that I should give notice
each winter of what lines I proposed to build
during the ensuing season. During the fol-
lowing years arrangements were made for
building a line along the Great Western Ry.,
& from time to time other railways as they
were projected & built in Ontario, such as the
Port Dover & Lake Huron; the Toronto &
Nipissing; the Northern; the North Simcoe;
the Port Hope, Peterborough & Lindsay; the
Midland; the Grand Junction; the Victoria;
the Hamilton & Lake Erie; the Hamilton
& North Western; the Lake Simcoe Junc-
tion; the Welland; the Whitby & Port Perry;
the Victoria; the Toronto, Grey & Bruce, etc.
Not only did we arrange to build lines along
these different railways, some of which were
consolidated with the Great Western, & final-
ly with the Grand Trunk, but we also cover-
ed all the principal highways in the Province.
I remember well an occasion when a rather
sarcastic enquiry came from the Secretary of
the Montreal Co., as to whether I had found
any more saw mills to which I proposed to
extend the lines. The policy adopted, how-
ever, turned out to be a good business policy,
& to-day the map of wires covering the coun-
try looks like a thickly-woven spider's web
through which a fly could scarcely escape.
There is hardly a town or village in the coun-
try which is not included in this network of
lines, to say nothing of the present telephone
system, so that instantaneous electrical com-
munication is almost within the reach of
every man's door.

I trust it may be considered a pardonable
pride on my part that I have had something to
do with the extension of an enterprise which
has done so much towards facilitating the
business & promoting the happiness of the
world, & I have always esteemed it a matter

for thankfulness that my attention was turned
at an early time in my life in this direction.

When I commenced my career as an oper-
ator there were only two railways in the coun-
try, a short line of 9 miles between Montreal
& Lachine, & the other between La Prairie &
St. Johns. There was not a mile of railroad
in Ontario or any other part of the Dominion,
& as illustrative of how one enterprise may
help another, it is undoubtedly true that rail-
way traffic is enormously increased by the
assistance rendered by the telegraph in facil-
itating the movements of trains, &c.

The tariff on messages in the early days
was reckoned in English currency, not dol-
lars & cents as now. On any extensions of
the lines in any direction, a small additional
rate was charged on through messages, until
finally, after a great many extensions had
been made, the tariff became a complicated
affair, charges ranging from 1s. to 7s. 6d., &
it became a question for careful consideration
as to how so complicated a scale might be
simplified. My advice was asked in the mat-
ter, & I at once procured statements from all
the different stations along the line, showing
the exact number of messages handled under
the different rates. From these statements I
discovered the fact that over 90% of the mes-
sages sent were under the lower rate, & con-
sequently between offices the nearest to one
another. I submitted a report to show that
the difference between these high rates & a
uniform rate of 25c. would involve no great
loss to the Co., even if there were no increase
in the number of messages, while it would ap-
pear to the public a very great concession.
The Co. adopted the suggestion, & a uniform
25c. rate was ordered. The consequence was
that business immediately increased between
remoter points on the line, & the policy pro-
ved eminently satisfactory to all concerned.

You are all well acquainted with the extra-
ordinary development in the application of
electricity, as shown in the telephone, electric
railway, fire alarm systems, transmission of
power & in other directions. It has been a
common saying ever since I entered the busi-
ness that electrical development was only in
its infancy; and notwithstanding all that has
taken place I am still convinced that the say-
ing is as true to-day as it ever was. Great as
the development has been in the past, there
is a vast field in the future yet to be occupied.
I sometimes hope to live for say 10 or 15 years
longer that I may see this development per-
fected which is now in sight & on the way.
Not only will every waterfall and rapid be
utilized for the production of electrical energy,
but the force in every gale of wind will be
called into use for the same purpose. All
railways will be run mainly by electric power.
Our houses will not only be lighted but heated
by electricity, & we shall require no more
coal in our houses for this purpose. A horse-
less age is in sight, with better & cleaner
streets. Tall & smoky chimneys will disap-
pear. Every farmer will have an electric
motor for use in his work of various kinds, &
this wonderful energy will be available for any
& every purpose under the sun where power
is required, by simply touching a button.

Our system of telegraphs is in many re-
spects precisely the same as when I learnt the
business 50 years ago. Of course there have
been many ingenious improvements made in
the instruments & in the use of the wires.
One of these improvements is what is known
as the quadruplex system—that is, the use
of one wire between two terminal points—To-
ronto and Montreal for instance—made to an-
swer the purpose of four—one real wire—
three phantom wires. Four operators do duty
at each end of the wire, and work independ-
ently, precisely as if there were four separate
wires. Before this method of using the wires
was discovered such a thing would have
seemed as impossible as it would now to make
a single railway track answer the purpose of

four independent lines. These electrical matters are full of wonders. I never get into a trolley car but I think of how wonderful a thing it is that by mere contact with a slender overhead wire the power of 40 horses can be brought into the motor, as well as current that can be utilized to heat & light the car. It is a wonderful thing that a slender wire strung about the city should be made to burst out into a thousand brilliant lights at different points, wherever required, by the simple insertion of a certain amount of resistance at given points on the wire. It is a marvellous thing that by speaking into a simple little instrument which contains a metal disc which corresponds to the drum of the human ear—the tone, pitch & character of our voices can be carried for 100 or 500 miles, & recognized by our friends at the other end of the wire as distinctly as if they were standing but 10 feet away. These are simply wonders which no man can explain. Can you wonder that such a business should be of sufficient interest to keep me in connection with it for 50 years? If I were to fall heir to a million dollars tomorrow, I would ask leave of absence from my work long enough to visit the Pyramids, but only on the condition that I might return to my work again, and continue in it as long as possible. While the business with which I am connected has had its peculiar worries & anxieties, as all other business has, it still retains for me its attraction, & I hope to be allowed to take an active part in it as long as I am able to be of any use or service.

It has been one of the pleasures of my later years to know that so many operators who learnt their business upon our lines are now filling responsible positions with other companies. Upon one occasion in taking a trip over the line of the C.P.R. to British Columbia, in company with my friend, Mr. Nicholls, when we returned over the Union Pacific, at many of the stations along the route both going & coming I was accosted by operators, station-masters & others, who reminded me that they were once operators on our lines, & had kindly recollections of their Canadian associates. And I have reason to know that Canadian operators are looked upon most favorably by their employers in the United States. During the American war some of the most expert field operators were Canadians, & the celebrated Southern raider, Morgan, had on his staff an operator named Ellsworth, who became celebrated during the war, & who learnt his business in our Whitby office.

Fifty years is a long time to look forward to, & is something which is rarely done. I remember when a boy having a vague idea that a man 50 years of age was pretty well advanced in life. As I grew older I set the date forward, & have been setting it forward ever since. Fifty years, however, is not a very long time to look back upon, & I can hardly realize that I have spent 50 years in the telegraph service; neither can I realize that to-morrow I shall be 69 years of age. I am now confidently of the opinion that a man of 70 years is not to be counted as old. When a man reaches 80 perhaps he may begin to think he is getting old, but certainly not until then. If I were to give my advice as to how a man might best retain his youthful feelings & ambitions, I should say: spend at least a month in the woods every year. If this does not have the desired effect, then I know of nothing that will. Doctors & drugs will not do it.

During the time of early telegraph extensions in various parts of the country I was of course travelling about from place to place, fixing upon routes, opening offices & appointing operators, & during these journeys invariably enquiring as to the location of different trout streams, which I duly noted. Afterwards, whenever I could manage to do so, in company with my friend, Tom Townsend—

who is here to-night, & who has been my companion in fishing & hunting trips for the last 40 years or more—we often visited these streams. As the country became better settled, during the last 20 or 25 years we have had to find other & more remote territory where we can indulge our favorite sport. I am glad to see here to-night so many friends who have first or last been my companions in the north woods, camping on Island Lake, Cedar Lake, Long Lake, Kiaskoka, Manitou, & numberless streams, rivers & waterfalls in Ontario, & on some salmon rivers in New Brunswick, where we have enjoyed holidays with a relish little understood by those who have had no such experience. I challenge my friends here who frequent New York to produce a Delmonico or Waldorf chef the equal of a "smoky Indian that we know," who cooks our bacon & trout freshly taken from the rapids of the Eau Clair or Manitou. There is a poem by Kipling in a recent number of Scribner's Magazine, which I would recommend to any of you who have not yet read it. On first reading you will probably not make head or tail of it, but after reading it carefully over again you will begin to smell the camp fire, and feel moved to take down your trout & salmon rods and reels; examine your Jock Scots & Silver Doctors, & note carefully whether they are ready for earliest possible use in the spring. I have records and memos of these trips of ours for the past 30 years, & I think I would sooner lose all the business records with which I have anything to do than these diaries of my hunting & fishing trips in our north woods. Those of you here to-night who only know something of this Dominion by noting the weekly increase in railway traffic, & other such information, & have not camped in those north woods & along those trout streams & salmon rivers, do not begin to realize what a grand country we live in.

Expansion Allowance in Laying Rails.

A railway superintendent writes us: Although a great deal has been written on the subject of space to be left between ends of rails in track laying, yet in every-day practice this important matter is very little understood, with the result that rails are ruined in track by too great opening at the ends. On many roads elaborate instructions are given as to the allowance for various temperatures, but as a matter of fact the track-laying foreman jams a piece of a spike box between the ends of the rails & lets them go at that. From extensive measurements made of rails at 30° below zero & 100° above, the extreme expansion of a rail was found to be about 3-32", & in designing rails & fastenings the holes in the rails & angle bars & size of the bolts should be such that the maximum expansion could not exceed this.

Many discussions have taken place as to the difference in expansion of light & heavy rails. As an experiment, I had a light & a heavy rail dipped in cold water & a foot cut off each & placed in a furnace, with the result that they both expanded alike, but in practice the heavier section of rail does not expand as much as the lighter section, for the reason that it takes so much longer for the sun's rays to thoroughly heat the heavier section.

I have made exhaustive experiments in laying heavy rails—72 to 80 lb. sections—and now always place them tight when laying in summer, which is the season rails are generally laid, & in the fall when the days are cold leave 3-16" at opening between rails. Rails laid tight show much better wear than those of same make laid open.

Accidents have occurred through rails kicking out, & the average trackman invariably attributes this to lack of expansion, where nine times out of ten the cause is due to creeping track.

The Algoma Central Railway, Etc.

Principal Grant, of Queen's University, Kingston, has contributed to the October Canadian Magazine an article on "The Jason of Algoma," Jason in this case being F. H. Clergue, who is discovering & capturing the Golden Fleece of Algoma. The various industries which Mr. Clergue has & is establishing at Sault Ste. Marie are described in a very interesting way. The railway & steamship branches of Mr. Clergue's enterprises are referred to as follows:—

"Additional industries are gathering round the canals, factories & mines, all contributing to the main object. When the Helen mine of iron ore was discovered near Michipicoton & a short railway brought it to a harbor ready for the market, transportation to the Midland blast furnace & other points became an immediate necessity. But the ship-brokers could not supply steamers or barges. All were pre-engaged. What was to be done? Wait on the pleasure of Mr. Rockefeller, who could put on the screw when it suited & as often as he liked? No. The right men were at once despatched to Britain, to purchase four steamers with the largest carrying capacity compatible with getting through our system of locks. While I was at the Sault in Aug., the last of the four arrived at the dock, near the new offices, with a cargo of 1,500 tons of Portland cement, bricks & other stuff, brought from England right up into the heart of the continent, without breaking bulk! Is there another such system of inland navigation elsewhere in the world? These steamers are to be carriers all the year round. On the approach of winter, they will run down to the ocean & engage in the Atlantic Coast carrying trade. Barges too are under way, for the outfit must be complete.

"We might be sure that railways as well as steamers would be planned. Three main lines, not counting branches, are now being constructed, located or contemplated, by the same intelligence which saw the possibilities of the Lake Superior mill-pond, & has ever since been engaged in turning the possible into the actual. The first is the Algoma Central, to run back to Missanabie on the main line of the C.P.R. The second will extend the Algoma Central to the salt water of James Bay, the pocket of Hudson's Bay which bends down to within 300 miles of Missanabie. The third will connect the Sudbury region with the great Manitoulin Island, crossing the north Channel of the Georgian Bay at Little Current. Each of these promises to impart new life to large & hitherto hermetically sealed districts of the Province. The first 10 miles of the Algoma Central are completed already. I had a run over them in their unballasted condition, on a truck, in company with three or four American gentlemen who had come up from New York & Philadelphia to see the holes in the ground where their money was being sown. May they reap a good harvest! To my astonishment the line ran through a fairly well wooded & well-settled rolling country. I had in my own mind previously given up the whole of that northern shore region as a hopeless barren, & the day before I had been informed by an intelligent person in the Sault that it was simply that & never would be anything more. Most ignorant are we of what we are most assured. Well, settlers had filtered in, men with hearts of oak, & that they had prospered, the fences, fields & buildings all along the line bare testimony. And now the sun had arisen on them. The railway was at their doors to carry their stock & garden stuff, their butter, eggs & chickens to as hungry a market as the heart of farmer could desire. The Co. believes that there are fertile little valleys & patches of good land all the way to Missanabie, & so they have agreed with the Government of the Province to place on their lands, or the lands

ENAMELED IRON TELEGRAPH SIGNS.

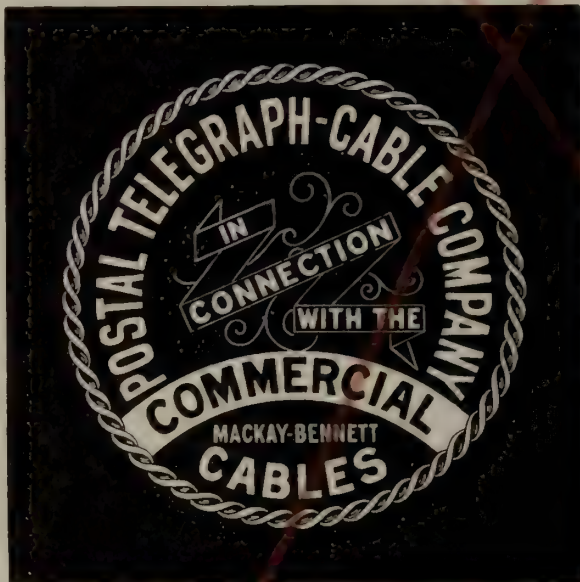
The only signs that are absolutely impervious to the weather.



No. 1.—Double, 19 x 13 ins., including flange, white letters on blue ground.



No. 3.—Double, 21½ x 10 ins., including flange, white letters on blue ground.



No. 2.—Single, 30 x 30 ins., white letters on blue ground.



No. 4.—Double, 22 x 8 ins., including flange, white letters on blue ground.



No. 5.—Single, 24 x 12 ins., white letters on blue ground.

Enameled Iron Signs can be made in any shape, size or colors. Blue and white make the most striking contrast.

Prices and further particulars supplied on application.

The Acton Burrows Co., 29 Melinda Street, Toronto.

Sole Agents for Canada for The Imperial Enamel Co. of Birmingham, England.



CANADA ATLANTIC RAILWAY ELEVATOR, DEPOT HARBOR, ONT.

of the Crown adjacent to their line, 1,000 male settlers annually for the next 10 years. In consideration of this & other covenants, they are to receive, in fee simple, 7,400 acres of land for every mile of the 200 they are constructing to Missanabie.

"The necessity for building the line to Missanabie is apparent. But where is the need, & what is the object of pushing it 300 miles farther north? I am informed that the areas of pulp-wood & of mineral-bearing rock are more promising on Hudson's Bay than on the Lake Superior watershed; & besides, the sea is there, & that means fisheries, at a distance of 500 miles from the Sault, whence fish can be shipped to Chicago on one side & St. Paul & Minneapolis on the other. Salt water fish are now carried to these markets over 2,000 & 3,000 miles of rail. How can Atlantic fish compete with their Hudson's Bay kith & kin, once the 500-mile iron bridge has been built?

"The Manitoulin line is perhaps the most promising of the three. This great & fertile island, the largest in the world surrounded by fresh water, has hitherto had no market for its products & has been isolated for weeks from the rest of the world twice a year. Population has, therefore, been attracted to it but slowly, in spite of its stock-raising capabilities. No wonder that promises of a railway are demanded & freely made to do duty every time an election comes round. A friend writes me: 'Were it not for Mr. Clergue's connection with it, the present renewal of the project would be universally regarded by our people as a mere election dodge. We now feel sure. The Sudbury end of the line will be built first, & I believe that it will then be pushed across the channel to Manitoulin. The line will open up a very rich region on the north shore, a district rich in copper, silver, nickel & iron, also in timber & pulp-wood. From the mouth of the Whitefish River to Little Current, there are few natural difficulties to overcome in building the line or in crossing. There is only one navigable channel & it is narrow & runs right past the town. The rest of the channel at this point is filled with a series of low-lying islands, composed of flat rock, of limestone formation, with scarcely any soil. Ultimately, the line will be pushed across the island to a point on the south or Lake Huron shore, where I believe there are one or two good harbors. The advantages

to us I need not dilate on. For one thing, we dread the two periods annually of complete isolation, when the ice is forming & when it is breaking up.' Any one who has spent a winter in Prince Edward Island will sympathize with that feeling. How 'the' Island would rejoice if its isolation were only for a month, & what would it not give for a bridge or a tunnel!"

Canada Atlantic Railway Elevators.

The illustrations on this page show the C.A.R. Co.'s elevators at Depot Harbor, Ont., & Coteau Landing, Que. The one at Depot Harbor on Parry Island, on the east side of Georgian Bay, takes grain from boats which have been loaded at any of the great lake ports, such as Fort William, Duluth, Chicago, etc., & loads it into cars. For physical

reasons the marine tower was built separate from the main house with which it is connected by a belt conveyer. Following are the principal dimensions, etc.:

Total capacity in bushels	1,000,000
Length, in feet	290
Width, in feet	80
Total height, in feet	158
Number of bins	98
Depth of bins, in feet	53 to 71
Capacity of bins, in bushels	1,400 to 12,000
Number of elevator legs	4
Capacity per hour each, in bushels	10,000 to 15,000
Capacity of scales, in pounds	72,000
Capacity of scale hoppers, in bushels	1,200
Number of distributing trolley spouts	2
Capacity from boats in 10 hours, in bushels	150,000
Into cars in 10 hours, in bushels	90,000
Length of power house, in feet	79
Width of power house, in feet	56
Number of boilers (horizontal tubular)	6
Style of engine & number	Two horizontal Corliss condensing
Kind of condenser	Jet
Size & style of electric engine	10 x 18 horizontal
Size of dynamo	35 KW

The grain which goes through the Depot Harbor elevator is loaded on cars & taken over the C.A. tracks to Coteau Landing, on the St. Lawrence River, about 37 miles up stream from Montreal. After passing through the Coteau Landing elevator the grain is loaded into barges & taken by river & canal to Montreal, where it is transferred to ocean steamships. Following are particulars of the Coteau Landing elevator:

Total capacity, in bushels	500,000
Length, in feet	143
Width, in feet	90
Total height, in feet	158
Number of bins	82
Depth of bins, in feet	65
Capacity of bins, in bushels	2,200 to 7,900
Number of elevator legs	6
Capacity per hour each, in bushels	8,000
Number of scales	6
Capacity of scales, in pounds	72,000
Capacity of scale hoppers, in bushels	1,200
Number of power shovels	6
Number of distributing trolley spouts	12
Capacity from cars in 10 hours, in bushels	100,000
Into cars in 10 hours, in bushels	150,000
Into boats in 10 hours, in bushels	400,000
Length of power house, in feet	53
Width of power house, in feet	41
Number of boilers (horizontal tubular)	2
Horsepower of each boiler	125
Style of engine & number	1 horiz'l Wheelock condensing
Horsepower	250
Kind of condenser	Jet
Size & style of electric engine	8 x 10 horizontal
Size of dynamo	25 KW
Capacity of fire pump, gallons per minute	350

Both these elevators were built from plans drawn by John S. Metcalf Co., Chicago, Ill.



CANADA ATLANTIC RAILWAY ELEVATOR, COTEAU LANDING, QUE.

G.T.R. SEMI-ANNUAL MEETING.

The semi-annual meeting was held at the Cannon St. Hotel, London, Eng., Oct. 9, the President, Sir C. Rivers Wilson, in the chair. The report for the ½ year ended June 30 was presented as follows:—

The following summary shows a comparison of the ½ year's revenue account with that of the corresponding ½ year, ended June 30, 1899:—

June 30, 1899.		June 30, 1900.	
£1,983,217	Gross receipts.	£2,139,691	11 10
	Deduct—		
1,298,244	Working expenses, being at the rate of 67.42% as compared with 65.46% in 1899..	1,442,549	4 8
	Net traffic receipts.....	697,142	7 2
684,973	Add—		
12,930	Received from International Bridge Co.....	12,930	12 9
5,958	Interest on Toledo, Saginaw, & Muskegon bonds..	6,898	8 3
3,088	Interest on bonds of Central Vermont Ry.	3,087	10 8
64,781	Interest on securities of controlled lines & on St. Clair Tunnel bonds acquired by issue of G. T. 4% debenture stock.....	62,214	13 3
16,449	Balance of general interest account.....	20,497	14 0
£788,179	Net revenue receipts....	£802,771	6 1

Following are the net revenue charges for the ½ year:—

Rents (leased lines).....	£ 73,174	8 3
Interest on debenture stocks & bonds of the Co.....	445,578	18 8
Interest on debenture stock & bonds of lines consolidated with the G. T. Co.....	70,485	5 7
Interest on Michigan Air Line bonds.....	7,750	...
	596,988	12 6
Amount advanced to the Chicago & G. T. Co. under traffic agreements towards payment of interest on its and mortgage bonds, ½ year to June 30, for which interest coupons are held.....	30,821	18 4
Amount advanced to the Detroit, Grand Haven & Milwaukee Co., towards payment of interest on its bonds, under agreements, ½ year to June 30.....	22,894	15 1
	53,716	13 5

Leaving a surplus of.....	£650,705	5 11
	£52,066	0 2
	£802,771	6 1

Adding the balance of £3,918 13s. 3d. at the credit of net revenue account on Dec. 31, 1899, to the above surplus for the past ½ year

of £152,066 os. 2d., the amount available for dividend is £155,984 13s. 5d.

The directors recommend the payment of the ½ year's dividend on the 4% guaranteed stock, amounting to £104,395 17s. 6d., & a dividend of 1½% on the first preference stock, amounting to £51,252 9s. od., leaving \$336 6s. 11d. to be carried forward to the next ½ year's accounts.

The net revenue surplus for the ½ year ended June 30, 1899, amounted to £136,404 8s. 10d. The result of the past ½ year's operations shows, therefore, an improvement of £15,661 11s. 4d.

There has been a decrease of 8 miles in the length of lines worked by the Co., caused by the taking up of 5¼ miles of the Chemong Branch, & by a re-adjustment of the mileage of the system. The increase of 1¼ miles "Leased & rented" is in the lines on the Montreal wharf, the property of the Harbor Board.

Following is a comparison of receipts for the ½-years ended June 30, 1900 & 1899:

Description.	1900.	1899.	Increase.
Passengers.....	£ 526,951	£ 493,247	£ 33,704
Mails & express.....	100,117	92,479	7,638
Freight & live stock.....	1,437,016	1,329,568	107,448
Miscellaneous.....	75,607	67,923	7,684
	£2,139,691	£1,983,217	£ 156,474

TRAFFIC STATISTICS.

	1900.	1899.	Increase.
Passengers carried.....	3,001,414	2,870,982	130,432
Average fare per passenger.....	3s. 6d.	3s. 5½d.	½d.
Tons of freight & live stock.....	5,217,131	4,878,256	338,875
Average rate per ton.....	5s. 6d.	5s. 5½d.	½d.
Tons carried one mile.....	1,162,433,186	1,106,187,159	56,246,027
Earnings per train mile.....	55.50d.	53.60d.	1.90d.

The average rate per ton per mile on the entire freight business was 0.60 of a cent, compared with 0.58 of a cent in the corresponding half-year.

The working expenses, including taxes, amounted in the ½-year to £1,442,549, or 67.42% of the gross receipts, as compared with £1,298,244, or 65.46%; an increase in amount of £144,305, & in the proportion to the gross receipts of 1.96%.

Following is a comparison of the revenue

expenditure, excluding taxes, for the ½-years ended June 30, 1900 & 1899:—

Description.	1900.	1899.	Increase.
Maintenance of way, & structures.....	£ 203,425	£ 195,205	£ 8,220
Maintenance of equipment.....	307,420	244,467	62,953
Conducting transportation.....	860,000	792,264	67,736
General expenses.....	59,004	53,848	5,156
Total.....	£1,429,849	£1,285,784	£ 144,065
Percentage of gross receipts.....	66.82	64.83	1.99
Expenditure per train-mile.....	37.09d.	34.75d.	2.34d.

The train mileage of the ½-year compares with that for the ½-year ended June 30, 1899, as follows:—

Description.	1900.	1899.	Increase.
Passenger.....	3,210,759	3,133,197	77,562
Freight.....	5,497,063	5,206,913	290,150
Mixed Trains.....	544,137	540,166	3,971
Total.....	9,251,959	8,880,276	371,683

The G. T. gross receipts for the ½-year show an increase of £156,474, or 7.89%; the working expenses, including taxes, an increase of £144,305, or 11.11%, caused partly by increased train mileage, but chiefly by the larger number of engines rebuilt during the past ½-year, & the enhanced payments for wages & the increased cost of fuel and material generally. The train mileage shows an increase of 371,683, or 4.19%.

No additions to locomotives & cars have been made at the expense of capital during the ½-year. Ten passenger coaches, 6 baggage, 585 freight & 5 caboose cars were built in the Montreal shops during the ½-year by way of renewals in replacement of cars out of service. On June 30, 1900, there were 5 locomotives in excess of the official stock, & there remained at that date £19,730 2s. 9d. at the credit of the engine renewal fund, & of £117,029 19s. 11d. at the credit of the car renewal fund, available for future replacements & renewals.

The outlay on capital account for the ½-year was £157,800 14s. 2d.; the principal items being £49,029 17s. 7d. on account of double tracking between Hamilton & Niagara Falls, & of other portions of the line; £55,031 14s. 3d. for the further equipment of engines & freight cars with air-brakes & automatic couplers, in compliance with the U. S. Safety Appliance Act; & £53,293 12s. 9d. for

MICA BOILER AND PIPE COVERING.

Used after exhaustive competitive tests by the
BRITISH ADMIRALTY on H. M. THE QUEEN'S YACHT.

The following Railways use it extensively:

C. P. Ry., M. C. Ry., L. E. and D. R. Ry., and C. O. Ry. in CANADA.
G. E. Ry., G. C. Ry., S. E. Ry., and L. & Y. Ry., in ENGLAND.

For full particulars, prices, etc., apply to the Company's Head Office in Canada.

The Mica Boiler Covering Co., Limited, 86-92 Ann St., Montreal.

the purchase of additional land at Montreal, Island Pond & Toronto, required for the improvement of terminal & traffic facilities. There has been credited to this account £13,999 19s., premium received on the issue of £200,000 4% debenture stock, thus reducing the total charges to capital account for the past ½-year to £143,800 15s. 2d.

An amount of £15,402, being the proportion of the expenditure chargeable to revenue for the reconstruction of the Victoria Jubilee Bridge & of the cost of renewing the bridges between Montreal & Portland & on the southern division, on the basis mentioned in the report for the ½-year ended June 30, 1898, has been included in the maintenance of way charges of the past ½-year. Of the £241,309 18s. 7d. authorized to be charged to the revenue account for the above purposes, £172,795 9s. 2d. had been expended to June 30 last, of which £138,090 13s. 8d. has been charged to revenue, leaving £34,704 15s. 6d. at the debit of renewal of bridges suspense account.

The gross receipts of the Detroit, Grand Haven & Milwaukee Ry. for the ½-year to June 30, 1900, were £90,415, against £90,163 in 1899, an increase of £252; the working expenses were £75,900, against £75,144, an increase of £756; leaving a balance of £14,515, against £15,019, a decrease of £504, compared with the corresponding ½-year of 1899. The net revenue charges for the ½-year were £37,410, against £37,387 in 1899, so that there was a net revenue deficiency of £22,895, as compared with £22,368 for the corresponding period of 1899. The number of passengers carried during the ½-year was 258,970, against 252,888, an increase of 6,082, or 2.41%, & the passenger receipts, including mails & express receipts, were £40,715, against £35,654, an increase of £5,061, or 14.20%. The quantity of freight moved was 418,601 tons, against 356,616 in 1899, an increase of 61,985, or 17.38%, & the receipts from freight traffic were £48,404, against £53,273 in 1899, a decrease of £4,869, or 9.14%.

The Chicago & G.T. Ry. is still in the hands of the receivers appointed by the Circuit Court of the U.S. £30,821 18s. 4d. has been paid by the Co. on account of the ½-year's interest on the 2nd mortgage bonds. It was mentioned in the last ½-year's report that the directors had arranged to enter into a new agreement for the interchange of traffic with the C. & G.T. Co. when reorganized, for the purpose of securing the interest on the bond capital of \$15,000,000. As a result of subsequent negotiations, it is now proposed that the 1st mortgage bonds shall further have the benefit of an unconditional guarantee of interest by the G.T. Co. The capital of the new Co. when reorganized will consist of:—
4% 1st mortgage 50-yr. gold bonds, \$15,000,000
4% income bonds " " 1,500,000
Capital stock " " 6,000,000

The scheme provides, that of the \$15,000,000 1st mortgage 4% bonds \$6,000,000 shall be issued to the holders of that amount of C. & G.T. 6% 1st mortgage bonds, & \$4,500,000 to the holders of \$6,000,000 C. & G.T. 5% 2nd mortgage bonds, who are also to receive the \$1,500,000 4% income bonds of the reorganized company. The remaining \$4,500,000 1st mortgage bonds are to be applied to the capital purposes of the new company as required. The G.T. Co. is to receive, in consideration of the above-mentioned guarantees, the entire capital stock of the reorganized company. A resolution approving of these arrangements will be submitted at the meeting. The proceedings in connection with the reorganization are progressing satisfactorily. The scheme of reconstruction, as modified, has been accepted by a large preponderance of the holders of both the 1st & 2nd mortgage bonds, & it will be carried into effect as soon as the legal procedure in the American courts under the foreclosure suit will permit.

Following are extracts from the appendices to the report:—

On June 30 the G.T.R. system comprised 3,498 miles of roadway, 423½ miles of second track, & 828½ miles of sidings, a total of 4,750 miles, of which 4,739½ miles are laid with steel rails & 10½ with iron.

The charges for the maintenance of the property during the half-year ended June 30, were \$40,000 greater than in the corresponding period of 1899. The large expenditure for the removal of snow fully accounts for this increase.

The Superintendent of Motive Power reports expenditure, mileage, &c., as follows:—

½-year ended	Expenditure.	Train Mileage.	Rate of Expen. per mile.		
			Train.	Engine.	Car.
			Cents.	Cents.	Cents.
June, 1900	\$2,765,972	9,251,959	29.90	24.25	1.88
" 1899	2,231,463	8,880,276	25.13	20.52	1.56

An increase in expenditure of \$534,509, or 23.95%, compared with an increase in train miles of 371,683, or 4.19%.

	Passenger Trains.	Freight Trains.	Mixed Trains.
The average number of cars moved per train was.....	4.2	23.4	9.9
And for corresponding period	4.3	23.8	10.0

The comparative cost of repairs per train, engine & car mile was:—

	Repairs & renewals of Locomotives.		All repairing charges, including shop machinery, tools, & marine equipment, &c.	
	1900.	1899.	1900.	1899.
	Cents.	Cents.	Cents.	Cents.
Train.....	6.87	4.78	8.82	6.05
Engine.....	5.57	3.90	7.15	4.94
Car.....	0.43	0.30	0.55	0.38

The Superintendent of Car Department reports expenditure, mileage, &c., as follows:—

½-year ended	Total cost of Repairs and Renewals,	Total miles run by Cars.			Cost per mile	
		Passenger.	Freight.	Total.	Car.	Train
					Cts.	Cts.
June, 1900	\$680,482	14,902,372	132,592,708	147,495,080	.461	7.36
" 1899	652,271	14,708,439	128,300,822	143,009,261	.456	7.35

An increase in expenditure of \$28,211, or 4.3%, with an increase in car miles of 4,485,819, or 3.1%.

At cost of capital 3,032 freight cars were equipped with automatic couplers & Westinghouse air brakes, & 6 passenger cars fitted with steam heating apparatus.

A London cablegram referring to the meeting, says:—A large number of persons were present, the assemblage consisting chiefly of city magnates & clergymen, with a sprinkling

of country investors & women. The meeting progressed smoothly while the President detailed the improvements made in the line, congratulated the shareholders on the increase in revenue, dilated on the rise in the cost of material & in the rates of wages, & explained the resolution of the day which provided for the re-organization of the C. & G.T.R. by the Canadian company.

After outlining the proposition, Sir Charles said he had received a letter from Sir Henry Tyler, formerly President of the road, expressing disapproval of the re-organization & asking that the letter be read before the meeting. White with passion Sir Charles declared that the vile language employed by Sir Henry justified him in putting it in the fire. The President continued his denunciation of the former President until the audience rose, crying, "Put it in the fire!" "Burn it! Shame!"

There was a scene of great disorder & then there arose a cry: "Tyler is here." In a moment a dead silence reigned, & between two rows of astonished shareholders the venerable figure of ex-President Tyler was seen walking towards the directors' rostrum.

As soon as Sir Rivers Wilson recovered his composure, he said, "Tyler, stand up, you who have vilified us, & repeat before us all the charges you have made."

Cheers mingled with groans greeted Sir Henry Tyler, who maintained that the C. & G.T. was owned & controlled by the Canadian G.T., & that, therefore, the directors were making false pretences when they represented the re-organization as a transaction between two independent concerns. Continuing, Sir Henry asserted that the scheme involved the repudiation by President Wilson of the C. & G.T. 2nd mortgage bonds, which, he asserted, were cut down from 5 to 4%. "Be honest," shouted Sir Henry Tyler. "Don't repudiate them."

Amidst a roar of hisses & jeers the voice of Sir Henry was lost, but he continued waving his arms & shouting inaudible charges against Sir Rivers Wilson. The latter stood up & in equally heated language absolutely denied Sir Henry's allegations & abused his administration. Half the time Sir Henry was on his feet endeavoring to interrupt, & the extraordinary spectacle was presented of the President & the ex-President of a great railway, both well-known financiers, standing before a howling audience, both of them shouting at once, & neither speaker being audible. It was only when several persons stepped forward with the intention of hustling Sir Henry Tyler out of the room that he subsided.

The meeting then, by a large majority, approved the directors' plan to re-organize the C. & G.T. with a guarantee of the interest on the bonds to be issued by the new company.

The meeting also gave Sir Charles a vote of thanks.

During the course of his speech, the President urged the shareholders to persist in improving the line. He added that the surplus earnings of the Central Vermont road would for the present be applied to this purpose. He expressed the belief that the Pan-American exposition at Buffalo would greatly add to the business of the road. But he further said that he considered it doubtful that the expenses of the road, in view of the labor troubles in the U.S., would be reduced during the coming year.

He was a new freight handler.

"Load those barrels in that car," ordered the freight agent.

"Oi can't load barrels in that cor, sor," responded the new man.

"Why not?"

"It's a box cor, sor."

C.P.R. Earnings & Expenses.

The following statement of the revenue account for the half-year ended June 30, which was promised because of the change in the Co.'s fiscal year, has been issued over the signatures of the President & the Comptroller:—

Gross earnings for 6 months to June 30.... \$14,167,797.89
Working expenses..... 8,889,851.06

Net earnings..... \$ 5,277,946.83
Interest on deposits & loans.... \$157,651.78
Interest from Duluth, South Shore & Atlantic R. Co. on consolidated bonds held..... 135,000.00
Interest from Minneapolis, St. Paul & Sault Ste. Marie Ry. Co. on bonds held..... 79,860.00
Amount repaid by M. St. P. & S. Ste. M. R. Co., being balance in full of interest advanced..... 638,846.89 \$1,011,358.67

Deduct fixed charges 6 months..... \$6,289,305.50
3,434,244.67

\$2,855,060.83

Deduct 6 months' interest on preference stock..... \$99,086.67

\$2,255,974.16

From this there has been declared a half-yearly dividend of 2½%..... 1,625,000.00

Leaving balance..... \$ 630,974.16

Gross earnings, working expenses, net profits and increases or decreases over 1899, from Jan. 1, 1900:

Earnings.	Expenses.	Net Profits.	Increase or Decrease.
Jan..\$2,152,071.32	\$1,460,501.71	\$ 691,569.61	\$ 74,035.75+
Feb.. 1,954,087.59	1,331,355.34	622,732.25	23,030.77+
Mar.. 2,294,786.97	1,495,685.73	799,101.24	29,794.33+
Apl.. 2,491,194.47	1,464,126.85	1,027,067.62	106,764.13+
May.. 2,662,897.81	1,583,227.32	1,079,670.49	46,911.88+
June.. 2,612,759.73	1,554,954.11	1,057,805.62	34,745.42+
July.. 2,471,169.64	1,586,795.74	884,373.90	88,587.73+
Aug.. 2,637,983.61	1,583,508.01	1,054,475.60	35,643.88+
\$19,276,951.14	\$12,060,154.81	\$7,216,796.33	\$202,749.77+
+ Increase. - Decrease.			

Approximate earnings for Sept., \$2,613,000, against \$2,600,000 in Sept., 1899, increase \$13,000,

SUBSIDIARY LINES.

DULUTH, SOUTH SHORE & ATLANTIC.—Approximate earnings for Sept., \$222,083; increase over Sept., 1899, \$655.

Net earnings for 7 months to July 31, \$570,988, against \$469,357 for corresponding period.

HANCOCK & CALUMET.—Approximate earnings for Sept., \$23,720, decrease from Sept. 1899, \$505.

MINERAL RANGE.—Approximate earnings for Sept., \$29,650, increase over Sept. 1899, \$7,425.

MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE.—The accounts for the year ended June 30, recently submitted, show a surplus of \$660,880, after meeting all fixed charges. Of this \$638,846 has been applied to the extinction of the balance due to the C.P.R., under its guarantee of interest, leaving \$22,034 to be carried forward.

Approximate earnings for Sept., \$374,478, decrease from Sept. 1899, \$124,983.

Net earnings for 6 months to June 30, \$1,109,323, against \$774,248 for corresponding period.

Canadian Pacific Railway Land Sales.

	Acres.	Amount.
	1900	1899
Jan.....	31,486	147,18
Feb.....	23,613	13,747
Mar.....	31,183	24,045
April.....	58,457	36,626
May.....	66,057	26,584
June.....	57,831	54,225
July.....	40,715	47,401
Aug.....	32,178	35,214
Sept.....	21,807	25,517
	363,327	278,077
		\$1,161,788.08
		\$884,120.04

Grand Trunk Earnings, Expenses, &c.

The following statement of earnings, supplied from the Montreal office, includes the G.T. of Canada, & the Detroit, Grand Haven & Milwaukee Rys., the earnings of the Chicago & G.T., which is in the hands of receivers, being omitted:

	1900.	1899.	Increase.	Decrease.
July	\$1,844,458	\$1,799,945	\$44,513	....
Aug.....	2,088,602	2,064,269	24,333	....
Sept.....	2,117,690	2,178,303	60,613	....
	\$6,050,750	\$6,042,517	\$8,233	....

The following figures are issued from the London, England, office:

GRAND TRUNK RAILWAY.**Revenue statement for August, 1900:**

	1900.	1899.	Increase.	Decrease.
Gross receipts.....	\$209,000	\$202,500	\$6,500	....
Working expenses.....	267,900	261,700	6,200	....

Net profit.... £141,100 £140,800 £200

Aggregate from July 1 to Aug. 31, 1900:

	1900.	1899.	Increase.	Decrease.
Gross receipts.....	\$769,400	\$752,647	\$16,753	....
Working expenses.....	510,500	496,815	13,685	....

Net profits.... £258,900 £255,832 £3,068

DETROIT, GRAND HAVEN & MILWAUKEE RY.**Revenue statement for August, 1900:**

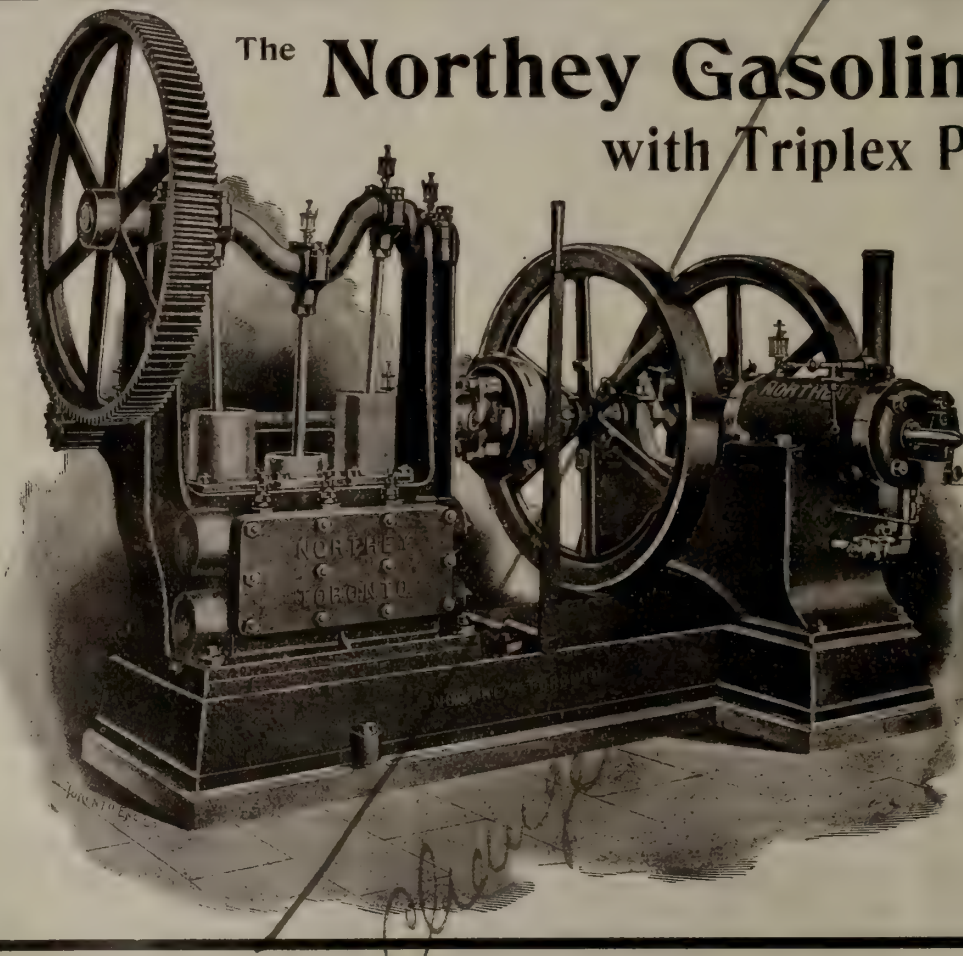
	1900.	1899.	Increase.	Decrease.
Gross receipts.....	\$20,100	\$21,600	....	\$1,500
Working expenses.....	17,500	13,800	3,700	....

Net profit..... £ 2,600 £ 7,800 £ 5,200

Aggregate from July 1 to Aug. 31, 1900:

	1900.	1899.	Increase.	Decrease.
Gross receipts.....	\$38,600	\$41,304	....	\$2,704
Working expenses.....	39,800	26,611	4,189	....

Net profit.... £ 7,800 £14,693 £6,893



The Northey Gasoline Engine

with Triplex Pump, for

TANK and FIRE DUTIES.

We here illustrate a complete, space saving pumping plant, including the Northey Triplex Power Pump and Gasoline Engine. This arrangement is admirably adapted for prompt service, as the engine is ready for work at a moment's notice, can be run by any one, and will operate for hours without attention.

The Triplex style of pump with cranks placed 120 degrees apart gives a practically constant flow of water. Both machines are strongly built, and have an ample margin of strength for heavy continuous duty. We have recently installed two such plants at Coteau Junction for the Grand Trunk and Canada Atlantic Railways, and are now filling a large order for the Canadian Northern Railway.

Booklet and Catalogues on request.

The Northey Co., Limited,
1032 King St. Subway,
TORONTO, CANADA

TRAFFIC RECEIPTS OF THE SYSTEM.

Traffic receipts, July. 1 to Sept. 30, 1900 :

	1900.	1899.	In-crease.	De-crease.
Grand Trunk....	£1,185,326	£1,180,237	£ 5,089	.....
D., G. H. & M..	57,998	61,377	.....	3,379
Total.....	£1,243,324	£1,241,614	£1,710	.....

CHICAGO & GRAND TRUNK FINANCES.

E. W. Meddaugh & H. B. Joy, as receivers, have filed their second quarterly report. It covers the period between March 31 & July 1, 1900, the disbursements having exceeded the receipts by nearly \$70,000. Besides this, the condition of the road, according to its engineer, demands the outlay of \$100,000 for 20 miles of new rails to put it into a safe condition for winter travel. The receivers hope to secure this amount from the next quarter's profits.

Canadian Northern Railway.

In our July issue we published an abridged prospectus issued by this Co. in connection with the issue of £1,191,500 $\frac{4}{2}$ per cent. 30 year (Ontario Division) 1st mortgage debenture bonds. On returning to Canada in Aug. from England W. Mackenzie stated to a reporter that he had succeeded in floating these bonds very successfully. Following are some additional particulars from the complete prospectus issued in England :

The Co.'s main line is for convenience divided into three divisions—the Ontario, the Winnipeg and the Saskatchewan divisions. The Co. has issued on its Winnipeg & Saskatchewan divisions, 4% 30-year gold bonds, at the rate of \$8,000 a mile, which may be increased to \$10,000 a mile, which bonds are guaranteed, principal & interest, by the Government of Manitoba. Thus the present bonded indebtedness of the Co., including the present issue, amounts to \$12,531 per mile (of main line), & the interest thereon to \$539 per annum per mile, as shown in the following table :

Ontario Division, about 290 miles at \$20,000 a mile at 4%.....	\$261,000
Winnipeg Division, about 266 miles at \$8,000 a mile, at 4%.....	85,120
Saskatchewan Division, about 212 miles at \$8,000 a mile, at 4%.....	67,840
Total annual charges.....	\$413,960

This low rate of fixed charges results largely from the liberal aid granted to the Co. towards construction by the parliaments of the Dominion & of the provinces of Ontario & Manitoba.

In addition to the guarantee of the Manitoba Government, the Dominion Government gave the Co. a land grant of 6,400 acres a mile on the main line in Manitoba, & of 12,800 acres a mile on the main line in Saskatchewan. The Dominion also made a grant of \$6,400 a mile towards construction on 208 miles of the Ontario Division, & \$3,200 a mile on 63 miles thereof, & the Government of Ontario made a grant of \$4,000 a mile for the same purpose on 271 miles passing through that province.

The Co. has the right to construct 100 miles from its main line, at or near the boundary of Manitoba & Saskatchewan, towards Prince Albert, with a cash subsidy from the Dominion of \$3,200 per mile.

The Dominion Government has entered into contracts with the Co. for the transport of mails, materials, men & supplies, by which the Government agrees to pay the Co. for 20 years \$80,000 a year. Such mails, materials, men & supplies are to be carried by the Co. at fixed rates & charges, & accounts thereof & of the payments made by the Government as above, are to be kept & rendered yearly, & interest at 4% per annum allowed on the balance on either side. Any balance at any time due by the Government to the Co. is to be paid annually, but the Co. is only called upon to pay the Government any balance that may be

against the Co. at the expiration of the period of 20 years. The Government retain 533,333 acres of its land grant as security for the performance of these contracts. Such land may be sold either by the Government or the Co. at prices to be fixed by both parties jointly, but the price shall in no case be less than \$1.50 an acre, & the proceeds of sales shall be received by the Government & taken into the account as above.

When the main line is completed to the Saskatchewan River, the Co. will have earned on it & on its branches now constructed a land grant from the Dominion of 2,455,466 acres. These branches are the Winnipegosis branch, 23 miles completed; the Gilbert Plains branch, 6 miles completed & the remaining 12 miles graded; & the Stanley Jct. branch, 66 miles. Out of the 2,455,466 acres of land, 533,333 acres are retained by the Government as above, & 1,365,333 acres have been mortgaged to secure \$2,000,000 of 4% of 20-year land grant bonds, & the interest on these bonds is provided by the assignment of the above mail & transport contracts. There will remain of the grant upwards of 550,000 acres which have not been incumbered, & on these the bonds will be a first charge. The land grant bonds are a charge upon the lands pledged at the rate of \$1.50 per acre, & the lands are now selling rapidly at an average price of \$3.35 per acre, which, it is expected, will increase from year to year, as in the case of the Canadian Pacific land grant. The lands are situated in proximity to the railway, & an area several times larger than the actual acreage required has been reserved by the Government for the Co., & the Co. has the advantage of choosing only such lands as are "fairly fit for settlement."

All monies received on account of sales of land are payable to the trustees of the land grant bonds, & with accumulated interest thereon are to be applied in the repayment of the land grant bonds, & when these bonds are paid off, will either be accumulated in the hands of the trustees for the redemption of the bonds of the present issue, or, at the option of the Co., may be applied to the purchase of bonds of the present issue in the open market. The 550,000 acres above mentioned, & the equity of redemption in the lands covered by the land grant bonds, form part of the security of the present issue.

The Co. has hitherto earned, as shown in the following statement, its fixed charges on the railway, from the opening of each section as completed :

	Dec. 31, 1897.	Years ended Dec. 31, 1898, 1899.	Dec. 31, 1899.
Miles open.....	100	125	220
Earnings.....	\$70,119.28	\$106,698.72	\$195,607.04
Expenses.....	39,058.30	54,594.40	100,652.93
Net earnings.	\$31,060.98	\$52,104.32	\$94,954.11

It is expected that the net earnings for 1900 (on the 220 miles now open) will amount to not less than \$150,000. In addition to this there will be considerable earnings from the 200 miles shortly to be opened & from the further 200 miles to be completed this year.

Up to Dec. 31, 1899, 35,000 acres have been sold to settlers, at an average price of \$3.35 per acre, of which by far the larger part was sold since the spring of 1899.

The Dominion & Provincial subsidies are made payable to the contractors, Mackenzie, Mann & Co., in 10 mile sections, only on the completion thereon to the satisfaction of the Government's Chief Engineer. The proceeds of the present issue will be held by the trustees & paid over in a similar manner on the passing of each section by the Dominion Government.

J. E. Hudson, President of the American Bell Telephone Co., of Boston, died suddenly Oct. 1, at the Beverly Farms station of the Boston & Maine Ry., while waiting for a train,

United States Railway Earnings.

Railway gross earnings for Sept. continue to show increase, though the total increase & rate per cent. are much smaller than for recent months, & the number of railroads reporting decreases is considerably augmented. The Chronicle's figures cover 107 roads aggregating 101,068 miles, against 97,678 miles a year ago. Their gross earnings were \$60,761,204, which was an increase of \$1,316,472, or only 2.21%. This is in comparison with \$6,081,159, or 11.08% increase in 1899, \$2,790,805, or 6.04% in 1898, & \$6,385,823, or 14.14% gain in 1897. Decreases are reported on 36 of the roads, & 14 of these in amounts over \$30,000. Among these are the Great Northern system, with a loss of \$236,422, the Northern Pacific \$173,475, the Chicago, Milwaukee & St. Paul \$150,940, & the Minneapolis, St. Paul & Sault Ste. Marie \$124,984. The Illinois Central leads the list of roads reporting gains with \$300,668. The Chesapeake & Ohio reports gains of \$226,917, the Baltimore & Ohio \$192,308, the Choctaw, Oklahoma & Gulf \$151,000, The Mexican Central \$146,055, the Norfolk & Western \$140,602, the New York Central \$137,680, & the Missouri Pacific \$137,336. A number of causes have contributed to the falling off, chief of which were the lessened activities in cotton & grain movements & the floods in Texas. The anthracite coal strike began Sept. 17, & has had its effect. But none of the companies are included in the statement. Bituminous coal roads like the Chesapeake & Ohio & the Norfolk & Western exhibit gains in earnings because of the increased demand for soft coal. The failure of the spring wheat crop is having some effect on certain roads. There was a slight increase to be sure in the wheat receipts for 4 weeks at 10 western centres, from 29,746,400 bush. a year ago to 29,861,105 this year, but this gain has been in the winter wheat. At Minneapolis the deliveries were 7,400,100 bush. this year, against 9,600,140 a year ago, & at Duluth there were only 2,827,043 bush. delivered this year, against 10,614,282 last year. There has been a marked falling off also in corn receipts, from 26,244,602 bush. a year ago, to 17,524,363 this year. Of the groups of roads only one, the Northwestern & North Pacific, shows a falling off. These 12 roads report gross earnings for Sept., 1900, of \$14,954,535, against \$16,122,116 a year ago.—Railroad Gazette.

Grand Trunk Subsidiary Companies.

Below are particulars of annual meetings held recently, with lists of officers elected, &c.

CHICAGO & GRAND TRUNK RV., at Chicago, Oct. 2. President, C. M. Hays; other directors, E. W. Meddaugh, W. J. Spicer, F. A. Howe, H. B. Joy, D. F. Skinner, A. Dickson; Secretary, C. Percy; Treasurer, J. H. Muir.

CHICAGO, DETROIT & CANADA GRAND TRUNK JCT. RV., at Detroit, Oct. 1. President, C. M. Hays; Vice-President, J. Bell; Secretary-Treasurer, C. Percy; other directors, W. J. Spicer, E. W. Meddaugh.

CINCINNATI, SAGINAW & MACKINAW R.R., at Detroit, Oct. 1. President, A. W. Wright; Vice-President & General Manager, C. M. Hays; other directors, G. M. Stark, W. R. Burt, S. O. Fisher, E. W. Meddaugh, F. H. McGuigan; Secretary-Treasurer, J. H. Muir.

DETROIT, GRAND HAVEN & MILWAUKEE RV., at Detroit, Oct. 1. President, C. M. Hays; other directors, E. W. Meddaugh, J. Hobson, C. Percy, J. Pridgeon, Jr., F. H. McGuigan, W. J. Spicer, J. W. Loud, R. Gillis.

GRAND TRUNK JCT. RV., at Chicago, Oct. 2. President, C. M. Hays; other directors, E. W. Meddaugh, F. A. Howe, H. B. Joy, W. J. Spicer; Secretary, C. Percy; Treasurer, J. H. Muir.

INTERNATIONAL BRIDGE, at Buffalo, Sept. 29. President, C. M. Hays; Vice-President, J. Bell; Secretary-Treasurer, C. Percy; other directors, H. W. Sprague, E. W. Meddaugh, G. F. Brownell, F. H. McGuigan.

MICHIGAN AIR LINE, at Detroit, Oct. 1. President, C. M. Hays; other directors, J. H. Muir, W. J. Spicer, E. W. Meddaugh, J. Bell; Secretary-Treasurer, C. Percy.

ST. CLAIR TUNNEL, at Detroit, Oct. 1. President, C. M. Hays; Vice-President, J. Bell; Superintendent, F. H. McGuigan; other directors, W. J. Spicer, A. Vidal, E. W. Meddaugh, J. Hobson; Secretary-Treasurer, C. Percy.

TOLEDO, SAGINAW & MUSKEGON RY., at Detroit, Oct. 1. President & General Manager, C. M. Hays; other directors, E. W. Meddaugh, J. W. Loud, C. J. Church, F. H. McGuigan, W. Cotter; Secretary-Treasurer, J. H. Muir.

The International Limited's Time.

The following comparison between the time of the G.T.R. International Limited & one of the well-known fast trains between Buffalo & Chicago, is of interest. The figures between Buffalo & Chicago are used, as the distance, 540 miles, correspond approximately with the distance Montreal to Windsor, which is 558 miles:—

Lake Shore Limited—Leave Buffalo, 3.20 a.m.; arrive Chicago, 4.30 p.m. Actual time, 13 hours, 10 minutes; miles, 540; miles per hour, 41. Stops en route, 19.

International Limited—Leave Montreal, 9.00 a.m.; arrive Windsor, 10.00 p.m. Actual time, 13 hours; miles, 558; miles per hour, 43. Stops en route, 23.

The "dead time" consumed while the train is not in motion is:—Lake Shore Limited, 19 minutes; International Limited, 31 minutes. Each stop of a train running at such a high rate of speed is equal to a loss of about 4 minutes; that is, allowing for the time when the train begins to slow up until it again attains its maximum speed after making stops the train loses by each stop 4 minutes compared with time it would make if it continued on at full speed without making the stop. The comparison, after deducting the "dead time" & 4 minutes for each stop, is still more favorable to the International Limited, as under:—Lake Shore Limited, net time 11 hours, 35 minutes, or 46 6-10 miles an hour; Inter-

national Limited, net time 10 hours, 57 minutes, or 55 8-10 miles an hour.

The Lake Shore Limited carries one or two more cars than the International Limited, but allowing for this fact the comparison is highly creditable to the G.T.R. service.

RAILWAY APPOINTMENTS, ETC.

Algoma Central.—H. Dreany, for several years Passenger Conductor on the Sault Ste. Marie branch of the C.P.R., has been appointed General Agent of the Michipocoton division at Michipocoton Harbor. All employees of the Michipocoton division will take their instructions from him.

C. Kyle has been appointed Master Mechanic, with headquarters at Sault Ste. Marie, Ont., succeeding W. L. Kerr, transferred.

R. Shanks, heretofore Roadmaster of the C.P.R. at Mattawa, has been appointed Roadmaster, with headquarters at Sault Ste. Marie, Ont.

P. Robinson has been appointed Dispatcher, with headquarters at Sault Ste. Marie, Ont.

W. Z. Earle has been appointed Assistant Engineer, succeeding R. C. Smith.

T. Williams, heretofore of the Bank of Toronto, London, has been appointed Paymaster for the Sault Pulp & Paper Co., & for the Lake Superior Power Co., & will also act as Paymaster for the A.C.R. for the present.

Canadian Pacific.—A slight change has been made in the dividing points between the eastern & western lines. Heretofore Fort William was the western terminus of the eastern lines, & the eastern terminus of the western lines. As the business of the Lake Superior terminals is most intimately connected with the western lines, the dividing point between the two main divisions of the system has been shifted from Fort William to Port Arthur, the jurisdiction of W. Whyte, Manager of the western lines, having been extended to & including Port Arthur. As the round houses & other terminal facilities are situated at Fort William, the eastern division engines & crews will run through to Fort William from the east, & will start from Fort William going east.

In reference to the announcement of changes in roadmasters on the eastern division, made in last month's issue, it may be mentioned that J. Hennesy, who has been ap-

pointed Roadmaster of the Quebec section at Three Rivers, succeeded W. Cooper, who died Aug. 15, of syncope of the heart. N. Delaire, appointed Roadmaster of Montreal terminals, succeeded J. Hennesy. P. Houston, appointed Roadmaster of the Montreal & Ottawa section, & of the Prescott & Sussex St. branches, with headquarters at Ottawa, succeeded J. M. Guenette, resigned. R. Clarke, appointed acting Roadmaster of the North Bay section, at Mattawa, succeeded R. Shanks, who resigned to enter the service of the Algoma Central.

J. W. Dawsey, heretofore Station & Weighing Inspector on lines east of Fort William, has been appointed Local Freight Agent at Montreal, vice J. F. Mundle.

Chicago, Milwaukee & St. Paul.—F. A. Miller, heretofore Assistant General Passenger Agent at Chicago, has been appointed General Passenger Agent, vice G. H. Heaford, resigned to engage in other business.

Fitchburg.—M. Williams has been elected President, succeeding E. D. Codman, resigned.

Grand Trunk.—X. H. Cornell has been appointed trainmaster of the 25th district, with headquarters at Durand, Mich., vice C. S. Cunningham, appointed Superintendent of St. Clair tunnel & terminals. Previous to this appointment Mr. Cornell was in the service of the Indiana, Illinois & Iowa R.R.

Great Northern of Canada.—N. J. Fraser has been appointed General Freight & Passenger Agent. He has recently been Montreal Manager for the Johnston Steamship Co., & was formerly in the Freight Department of the G.T.R.

Intercolonial.—In our last issue we noted the appointment of N. L. Rand as Acting Road foreman of locomotives from Campbellton east, & of J. Murphy, from Campbellton west. The circular says:—"All drivers & firemen are to take orders from them in every matter regarding the running & repairing of locomotives, & all round-house foremen will carry out their requests relating thereto."

Midland of Nova Scotia.—H. V. Harris has been appointed General Manager, with headquarters at Windsor, N.S.

Missouri Pacific.—J. M. Herbert, who recently resigned the Superintendency of the eastern division of the G.T.R., has been appointed Superintendent on the M.P. system at Ossawatimie, Kansas.

It Leads Them All.

Where accurate Weighing is required use

GURNEY STANDARD SCALES.

WE MAKE SCALES FOR ALL PURPOSES.***ALSO THE REED RECORDING ATTACHMENT FOR RAILROAD TRACK SCALES.

Write For Descriptive Circular.

The Gurney Scale Co.,
HAMILTON, ONT., CANADA.

New York & Ottawa.—The completion of the bridge over the St. Lawrence River between Cornwall, Ont., & Hogansburg, N.Y., enables the Ottawa & New York Ry., & the New York & Ottawa R.R. to be operated as one line. For the purposes of operating & for the convenience of transacting business, the line will be known as the New York & Ottawa. The following officers with offices at Ottawa, Ont., will have charge:—G. B. Colpas, Auditor; G. H. Phillips, General Freight & Passenger Agent; G. A. Brown, Assistant General Freight Agent; H. K. Gays, Assistant General Passenger Agent; M. G. De Shaw, Superintendent; M. Keefe, Roadmaster; M. Goodrich, Master Mechanic, office, Santa Clara, N.Y.

Northern Pacific.—General Superintendent Kimberly, who has been absent for several months on account of ill health, has been relieved of the arduous duties of General Superintendent, & has been made Assistant General Manager. Assistant General Superintendent Law, who has had charge of the operating department during Mr. Kimberly's absence, has succeeded to the General Superintendency.

Quebec Southern.—The Quebec Southern Ry. Co. assumed the control & management of the East Richelieu Valley R.R., & the United Counties Ry., on Sept. 1, with operating headquarters at St. Hyacinthe, Que. The

W. D. V. Earl, Local Manager of the Bell Telephone Co. at Brockville, was recently married to Miss Moody, of Terrebonne, Que.

Duncan Campbell, Superintendent of Construction on the Gilbert Plains branch of the Canadian Northern Ry., is suffering from typhoid.

Wm. Mackenzie, of Mackenzie, Mann & Co., has been making a trip from Toronto to the Pacific coast, accompanied by his three daughters.

W. Phillips, formerly Manager of the Niagara Falls Park & River Ry., has received an appointment on the Winnipeg Electric Street Ry.

Miss Ethel S. Grundy, daughter of the General Manager of the Quebec Central Ry., was married at Sherbrooke, Que., Oct. 17, to W. E. Paton, of the Paton Mfg. Co.

Jas. Jenkins, who died recently at Little River, P.E.I., aged 86, was for over 20 years engaged in ship building, when it was an important industry in Prince Edward Island.

Lyman Dwight, Superintendent of the G.N.W. telegraph lines in Manitoba, returned to Winnipeg at the end of Sept., after several months' absence on account of ill health.

G. H. Phillips, who has been appointed General Freight & Passenger Agent of the New York & Ottawa Ry., was for a number of

syndicate is considerably embarrassed by the fact that neither the United States nor the provisional government is prepared to grant the franchises necessary or confirm the old concessions which have been purchased from the persons to whom they were granted by the Spanish authorities before the war.

The old seventh form of Upper Canada College, Toronto, in 1852, consisted of N. Walker of Port Dover, head boy, now an M.D. of the same place; N. Kingsmill, of Niagara, now a Q.C. of Toronto; J. E. O'Reilly, of Hamilton, now Master in Chancery there; C. W. Robinson, of Toronto, now a General in the British army, resident in England, & C. F. Gildersleeve, of Kingston, now General Manager of the Richelieu & Ontario Navigation Co. of Montreal. On the occasion of General Robinson (who is a son of the late Sir Beverley Robinson, Chief Justice) making a visit to this country recently, Mr. Kingsmill conceived the happy idea, & brought the old form together, with some of their contemporaries, at dinner at his residence, 48 years after they had separated as boys. Such a reunion, with unbroken ranks after half a century of life's vicissitudes, is a remarkable occurrence.

The Souvenir of the Victoria Jubilee Bridge, recently issued by the G.T.R. System, is one of the most unique works we have ever



BALDWIN CONSOLIDATION LOCOMOTIVE FOR ALGOMA CENTRAL RAILWAY.

officers are as follows:—President, H. A. Hodge, Rutland, Vermont; Vice-President & Treasurer, F. D. White, Rutland; Auditor, M. M. Thomson, Rutland; Traffic Manager, A. H. Harris, 141 St. James St., Montreal; Superintendent, R. A. Trudeau, St. Hyacinthe, Que.

Rutland.—E. G. Russell, who recently resigned the General Superintendency of the Delaware, Lackawanna & Western, has been appointed General Manager. Headquarters, Rutland, Vt.

White Pass & Yukon.—J. S. Wilson, heretofore General Agent, has been appointed Claim Agent. Office, Skagway, Alaska.

Mainly About People.

T. Ahearn, of Ottawa, has returned from a trip to Europe.

Hugh Sutherland, of Mackenzie Mann & Co., is again residing in Winnipeg.

C. Fargo, Second Vice-President of the American Express Co., died in Chicago, Oct. 13. He was born there in 1831.

G. R. Joughins, Mechanical Superintendent of the Intercolonial Ry., returned to Moncton, N.B., early in October from Europe.

R. Atkinson, Superintendent of the C.P.R. Rolling Stock, has been making a trip of inspection over the western lines of the Co.

years Travelling Freight Agent for the Canada Atlantic.

The Northwest Railway Club recently elected E. A. Williams, Mechanical Superintendent of the "Soo" Line, as President, & T. A. Foque, Assistant Mechanical Superintendent of the same line as Secretary-Treasurer.

R. D. Marchand, for some years expert for the Westinghouse Co., in connection with the long distance transmission of electricity, has been appointed to a similar position with the Montreal Street Ry. & the Chambly Manufacturing Companies.

C. R. Hosmer, of the C.P.R. directorate, recently entertained a number of the members of the Montreal Hunt Club & other friends at breakfast at the Forest & Stream Club, Dorval. They were conveyed from Montreal by a special G.T.R. train.

D. A. McDonell, ex-Superintendent of the Cornwall Canal, died Oct. 4, aged 84. He was appointed Superintendent of the Beauharnois Canal in 1846, & in 1849 was appointed Superintendent of the Cornwall Canal, occupying the position for 41 years & retiring in 1889.

A New York press despatch says:—Sir Wm. Van Horne spends most of his time in New York nowadays looking after the interests of the syndicate which purchased the railways of Cuba, and he expects to extend them to all parts of the Island. The

seen got out by a railway company. A history & description of the original tubular bridge, built in 1860, & of the new bridge, completed in 1899, is printed on pages of card, each of which is separately fastened by cloth to secure permanent binding. It is profusely illustrated with high-class half-tones, beautifully printed in tints, & is bound in a chastely executed aluminum cover. In addition to being of present interest & historical value, it is a most perfect specimen of book work.

Canada's Railway Facilities.—The Sioux City, Ia., Daily Tribune, says:—"Possibly many in the United States who imagine themselves fairly well posted regarding all the nations of this continent will be surprised to learn that Canada has such great advantages in the matter of transportation facilities. They will hardly credit the statement that Canada has \$180 per head of her population invested in railways, while, according to the latest reports of the Interstate Commerce Commission, the United States has \$150 per head so invested. The efficiency of the 17,400 miles of railway in Canada is illustrated by the fact that when the British government recently made enquiry about the carrying power of the Canadian Pacific Railway, in order to ascertain at what rate per diem troops could be transported from the Atlantic to the Pacific on the way to China, the reply was, 5,000 troops a day, & the time 100 hours for each shipment of troops."

Railway Equipment Notes.

The G.T.R. is said to have ordered 300 box cars in the U.S.

The net income of the Westinghouse Air Brake Co. for the past fiscal year was \$3,528,199.

The P.E.I. Ry.'s 2 locomotives, described in our last issue, have been delivered at Charlottetown.

The C.P.R. is building in its Montreal shops 2 standard wing snow plows & 2 double-track snow plows.

The Lehigh Valley is using a system of lettering on its locomotives which indicates the pulling capacity of each class.

It is probable that an order will soon be placed for building 10 first-class passenger cars in the C.P.R.'s Montreal shops.

The G.T.R. shops at Montreal are working on an order for 1,000 standard box cars, 33 ft. long, 60,000 lbs. capacity. About 100 were completed by Sept. 30, & they are being turned out at the rate of 36 a week.

The Algoma Central is obtaining 4 consolidation locomotives from the Baldwin Locomotive Works, the general dimensions of which

were given in our last issue. An illustration of one of them is given on page 299.

The Intercolonial has placed an order with Rhodes, Curry & Co., Amherst, N.S., for 1,000 box cars of 60,000 lbs. capacity. Orders have also been placed with other firms for 225 box cars of similar capacity & 200 platform cars.

An order was recently placed for the construction of the following equipment at the C. P.R. shops at Perth, Ont.—138 box cars, 100 gondola cars with hopper bottoms, 20 refrigerator cars, 100 ore cars for the Kootenay District, B.C. All of the above mentioned will be of 60,000 lbs. capacity.

The New York & Ottawa's equipment consists of 8 locomotives, 12 passenger cars, 1 baggage car, 3 combination cars, 320 freight cars & 4 cabooses. As the Co. will not have through New York service this winter it has not been found necessary to purchase the 2 locomotives mentioned in our last issue.

The Great Northern of Canada's equipment, most of which has been purchased recently in the U.S. by Vice-President McNaught, of New York, comprises 12 locomotives, mostly new; 14 passenger cars, 2 combination cars, passenger, mail & express; 4 baggage & ex-

press cars, 600 box cars, 140 platform cars, 69 gondolas, & 6 cabooses.

The Minneapolis, St. Paul & Sault Ste. Marie's Baldwin compound decapod locomotive was illustrated in our last issue. As stated, it was guaranteed to haul 2,000 tons, exclusive of the tender & caboose, on a compensated grade of 42 ft. per mile. This has been satisfactorily accomplished, with a low fuel consumption, as shown by the following particulars of its performance on Aug. 21, 22 & 26:

	Aug. 21 Ex East.	Aug. 22 Ex West.	Aug. 26
Distance.....	111	111	111
Tonnage, net.....	1,205.09	1,208.8	1,227.7
" tare.....	790.7	937.47	785.05
" total.....	1,996.6	2,235.27	2,012.75
Cars, loads.....	58	60	58
" empties.....	0	6	0
Ton miles.....	221,622.6	222,782.8	223,415.25
Tons coal used.....	11.1150	11.425	10.1450
Lbs. coal per 10,000 ton miles.....	1,044	1,007	960

There are 7 miles omitted on trip of Aug. 26, on account of doubling over a piece of track with a 68 ft. grade.

The White Pass & Yukon used last winter a regular standard gauge rotary snow plow, the only change made before putting it into service being to push the wheels in to narrow gauge. The trucks thus changed gave some

F. B. POLSON

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The POLSON IRON WORKS

TORONTO, - - CANADA.

STEEL BOILERS The Best Equipped Boiler and Engine Works
in Canada.

We Manufacture

*The Brown Automatic Engine
Single, Compound and Triple Marine Engines
Hoisting and Mining Engines
Steel Steam Vessels of every description
Steam Yachts and Launches*

..... Get Our Prices Before Ordering.

Esplanade East, Foot of Sherbourne Street, -:- TORONTO.

The Haliburton Lumber Company, LIMITED.

All Kinds of Hard and Soft Timber and Lumber,
Shingles, Slabs and Tan Bark.

PINE, SPRUCE, HEMLOCK AND BIRCH BILL STUFF CUT TO ORDER.

MILLS AT INGOLDSBY, ONT.

Head Office, Henderson Block, Corner Queen and Yonge Sts., TORONTO.

Net earnings.....	\$2,596,604 92
Interest on bonds.....	\$1,320,360 00
Taxes & revenue.....	241,809 26
Rental of terminals.....	129,158 94
Other interest charges & accounts charged off.....	24,404 91
	\$1,715,733 11
Surplus earnings.....	\$ 880,871 81

TRAFFIC AND MILEAGE STATISTICS.

Train Mileage.	
Freight revenue trains.....(miles)	1,618,312
Passenger revenue trains.....	845,602
Mixed revenue trains.....	386,270
Non-revenue trains.....	105,591
Total train mileage.....	2,955,775
Freight Traffic.	
Tons carried.....	3,102,244
" " one mile.....	603,856,370
" " per mile of road.....	469,656
Average distance haul of one ton.....(miles)	194.65
amount received for each ton of freight.....	\$1 28
Average rate per ton per mile.....	6.58 mills
Freight earnings per mile of road.....	\$3.095 17
earnings per train mile.....	\$1 98½
Passenger traffic.	
No. of passengers carried earning revenue.....	436,813
" " " one mile.....	37,543,998
" " " per mile of road.....	29,200
Average distance carried.....(miles)	85.95
amount received from each passenger.....	\$1 88
Average rate per passenger per mile (cents).....	2.19
Passenger earnings per mile of road.....	\$888 96
" " train mile.....(cents)	92.78
Miscellaneous.	
Gross earnings per mile of road.....	\$4.006 39
Operating expenses per mile of road.....	\$1.986 86
Mileage of passenger cars.....	5,867,640
Average no. of passenger cars per train.....	4.76
" " passengers per train.....	30
Mileage of loaded freight cars—North or East.....	19,340,001
Mileage of loaded freight cars—South or West.....	20,562,326
Mileage of empty freight cars—North or East.....	5,886,641
Mileage of empty freight cars—South or West.....	5,649,500
Average no. of freight cars in train.....	25.66
" " loaded cars.....	19.91

Average no. of tons freight in train.....	301.24
car.....	15.13
Average mileage operated during year.....	1,285.74

Following are the officers, &c.—President, T. Lowry, Minneapolis; Vice-President, J. Martin, Minneapolis; other directors: W. D. Washburn, J. S. Pillsbury, C. H. Pettit, F. H. Peavey, Minneapolis; Sir Wm. Van Horne, T. G. Shaughnessy, R. B. Angus, Montreal; W. H. Bradley, Tomahawk, Wis.; W. B. Dean, St. Paul; General Manager, E. Pennington; Sec.-Treas., C. F. Clement; Auditor, C. W. Gardner.

Central Vermont Railway Meeting.

The annual meeting of this subsidiary Company of the G.T.R. was held at St. Alban's, Vt., Oct. 9. Following are extracts from the first annual report:—

Your Co. took possession of the re-organized C.V.R., May 1, 1899. The directors, therefore, submit a report of the business & operations of the Co. for the 2 months May 1 to June 30, 1899, as well as for the fiscal year ended June 30, 1900.

TRACK OWNED SOLELY BY THIS COMPANY.

Main Track.	
St. John's to Windsor.....	177.9 Miles.
Essex Junction to Burlington.....	8 "
Rouse's Point to Swanton Jct.....	17.7 "
Second Main Track.	
Swanton Jct. to St. Albans.....	6.2 Miles.
Branch Lines.	
S., S. & C. Jct. to Waterloo.....	40.4 Miles.
Montpelier Jct. to Williams-town.....	14.9 "
Essex Jct. to Cambridge Jct.....	26 "
St. Albans to Richford.....	28 "
Total.....	109.3 "
Yard tracks, sidings & spur tracks.....	105.3 "
LEASED LINES.	
Main Track.	
Brattleboro to New London, (New London Northern R.R.).....	121. "

Branch Lines.	
Brattleboro to South Londonderry (narrow gauge).....	36 Miles.
St. Lambert to Farnham, (Montreal & Province Line Ry.).....	32. "
Mariville to St. Cesaire, (M. & P. L. Ry.).....	8.6 "
Montville to Palmertown.....	2.5 "
Total.....	79.1 "
Yard tracks, sidings & spur tracks.....	44.5 "
Total miles track.....	669.0 "
Deducting and main track, yard tracks, sidings & spur tracks, leaves 513 miles operated.	

The financial results are as follows:

MAY AND JUNE, 1899.

Gross earnings.....	\$ 548,131 19
Operating expenses, including taxes.....	424,635 22
Net earnings.....	123,495 97
Total income.....	123,495 97
Fixed charges.	
Interest on bonds.....	73,333 33
Rental of leased lines (New London, Northern, & Montreal & Province Line).....	36,366 65
Balance above all charges.....	13,795 99

YEAR ENDED JUNE 30, 1900.

Gross earnings.....	\$3,382,723 72
Operating expenses, including taxes.....	2,599,284 62
Net earnings.....	783,439 10
Income from other sources.....	10,845 88
Total income.....	794,284 98
Fixed charges.	
Interest on bonds.....	447,235 03
Rental of leased lines (New London, Northern, & Montreal & Province Line).....	128,200 00
Balance above all charges.....	128,849 95

The percentage of operating expenses for the year was 73.83%.

Your directors have taken advantage of the favorable earnings to make liberal expenditures in connection with the renewal & maintenance of the property. There have been 102 miles of new 75 & 80 lb. steel rail laid in the main tracks, while the rail released has been relaid on the less important lines, thus bringing up the standard of the track on all portions of the system. In addition to a liberal renewal of cross ties, the number of ties per mile has been increased. With the com-

Lubricating Oils

**MARINE VALVE, RENOWN ENGINE,
ELDORADO ENGINE OILS and
ARCTIC CUP GREASE.**

Durability—Reliability—Uniformity

Are points of excellence in favor of these oils and greases, which have stood the severest test for years.

These brands with a full line of oils manufactured by the Imperial Oil Company

FOR SALE AT ALL LAKE PORTS.

The best goods are most economical The names of the best are well known to all marine engineers of experience.

A Popular Route to New York

Canadian Pacific, and Toronto, Hamilton and Buffalo Railways in connection with the **New York Central & Hudson River Railroad.**

Leaving Toronto in the evening at 5.20 p.m. in one of the through sleeping cars of the Wagner Co., you are landed at Grand Central station, in the very heart of the City of New York, 4th Avenue and 42nd Street, at 8.15 next morning, adjacent to all hotels and business houses and avoiding the annoyance of transfer.

This is also the route of the famous **"EMPIRE STATE EXPRESS"**

Fastest Train in the world.

Call on nearest ticket agent of the C.P.R. or T.H. & B. for further information, or address

GEORGE H. DANIELS,
Genl. Passr. Agent, Grand Central Station,
NEW YORK.

LOUIS DRAGO, **H. PARRY,**
Can. Passr. Agent, TORONTO, ONT. Genl. Agent, BUFFALO, N.Y.

THE HUNTER, ROSE CO.,

All kinds of... Limited.
**PRINTING, BOOKBINDING,
OFFICE STATIONERY
and ACCOUNT BOOKS**
Temple Building, • • Toronto.

pletion of the construction of new steel bridges now under contract, all of the wooden & combination bridges on the main line will have been removed. There have been general repairs, renewals & painting done to the station buildings, machine shops, etc. For the period covered by this report there were included in operating expenses extraordinary expenditures for improvements & betterments to the amount of \$426,766.17.

We have purchased 200 shares of the Ogdensburg Car Co., for \$87,000, which, with the 100 shares acquired with the property, gave us the entire stock of the Co., \$300,000. The charter has been surrendered, the affairs of the Co. wound up, & the rolling stock, consisting of 493 cars, added to the C.V. equipment.

The Commission appointed by the Supreme Court of Vermont to consider the matter of the desired crossing of our tracks at Burlington by the Rutland-Canadian Ry., decided that the public & all concerned would be best served by a connection between the R.-C. Ry. & the C.V.R., with a joint use of the tracks & station, & granted to the R.-C. R. a right of way for a single track from the Northern boundary of our property to a connection with our main line near the engine house at Burlington, all expense of construction of the new track to be borne by the R.-C. R., & a rental of \$7,000 a year to be paid by that Co. to the C.V.R. Co., for the use of its tracks, lands & passenger station, & for services at the passenger station. The R.C.R. has about completed its line to a connection with our tracks.

An agreement has also been reached with the R.C.R. Co. for the crossing of our tracks at Alburgh with its Canadian branch, the construction of its main line to Rouse's Point, south of our track, & for the joint ownership & use of the bridge across Lake Champlain. Under this agreement we obtain a right of way over its line to a connection with the tracks of the G.T.R. at Rouse's Point.

Satisfactory arrangements have been made with the Delaware & Hudson & Grand Trunk companies for joint use of their yard & station facilities at Rouse's Point.

An agreement has been made with the Boston & Maine R.R. for the joint use of the C.V. & B. & M. tracks between South Vernon & White River Jct., effective Oct. 1, which will enable us to run our trains through between St. John's & New London.

The contract with the Canada Atlantic Ry. for the joint use of the line between Swanton & East Alburgh has been renewed.

Legislation was obtained at the last session of the Dominion Parliament, enabling the Co. to hold stock of the Montreal & Vermont Jct. Railway, the Stanstead, Shefford & Chambly Ry., & the Montreal & Providence Line Ry., permitting the consolidation of these lines with each other, or with the C.V.R. An agreement has been entered into with the owners of the M. & P.L.R. from St. Lambert, Que., to the International Boundary, (3 miles south of Frelighsburg), to acquire the stock of that Co., upon the C.V.R., guaranteeing \$200,000 of 4% 50 year bonds. The Dominion Government has granted a subsidy of \$3,200 a mile for the rebuilding of the abandoned portion of the M. & P.L.R. from Farnham to the Province Line, & we will begin the work of rebuilding from Farnham to Frelighsburg at an early date.

The New York, New Haven & Hartford Co. having extended its Norwich & Worcester line from Allen Point to Groton, discontinued June 3, 1899, the use of our tracks between Norwich & New London. Your receipts have thereby been diminished to the extent of \$40,000 a year, the rental heretofore paid by that Co. Passenger receipts on that portion of the line have also suffered from the competition of the new road.

There were issued to the C.V.R. Co., for the payment of liens & expenses properly chargeable to the new company, bonds to the amount of \$292,600 And in exchange for Consolidated R.R. of Vermont bonds held by the Company..... 17,400

Total \$310,000
All of which were received from the Trust Company. Of this amount there was paid for the claim of the Weldon National Bank, in bonds at par..... \$10,000
For payment of mortgage on property acquired from the Shepard & Morse Co., Burlington, bonds at par..... 40,000
..... \$ 50,000

Leaving a balance of bonds in your treasury of \$260,000

All other expenses & amounts due for which these bonds were provided have been paid by the Co. in cash.

Our passenger & freight equipment is at present inadequate for the proper handling of the business, & in order to provide the necessary funds it has been decided by your directors that the surplus from operation for the period covered by this report of \$142,645.94 be applied to the credit of an equipment renewal fund, against which shall be charged expenditures as they may be made for new cars & engines.

Following are extracts from the Vice-President & General Manager's reports:—

For the 14 months, May 1, 1899, to June 30, 1900, the percentage of expenses to earnings was 73.99%, compared with 76.49% in the preceding 14 months, a decrease of 2.5%. The percentage of improvements included in operating expenses, to the earnings, was 10.86%, as compared with 5.69% in the preceding 14 months. The percentage of ordinary expenses, to the earnings, was 63.13%, as compared with 70.80% in the preceding 14 months.

Rates have been well maintained during the year. The number of tons carried one mile was 252,551,609, an increase of 14,715,098; the earnings per freight train mile, \$1.56, an increase of 2c., & the earnings per ton per mile, 0.88c., an increase of 0.04c. The number of passengers carried one mile, 43,707,921, shows an increase of 1,107,897; the earnings per passenger train mile, \$1.04, an increase of 0.8c., & the earnings per passenger per mile, have increased from 2.18c. to 2.22c., an increase of 0.04c.

ASSETS.

Cost of road & equipment.....	\$13,825,839 85
Bonds deposited with trustee.....	1,000,000 00
Materials & supplies on hand.....	254,070 09
Cash on hand & in transit.....	153,232 41
Investments in bonds.....	257,679 68
Sundry accounts collectible.....	
Due from agents.....	88,417 08
From U.S. & Canada carrying mails..	20,365 73
Sundry railroads & individuals.....	311,744 00
Advances fast freight line account working fund.....	9,950 00
	\$15,921,298 84

LIABILITIES.

First mortgage bonds.....	\$12,000,000 00
Common stock.....	3,000,000 00
Interest due.....	9,938 00
Interest accrued not due.....	74,408 36
Taxes accrued not due.....	51,872 71
Sundry accounts payable.....	
Vouchers & pay rolls.....	429,360 19
Sundry railroads & individuals.....	117,331 07
Improvement fund.....	95,742 57
Equipment renewal.....	142,645 94
	\$15,921,298 84

ENGINE MILEAGE.

	Year ended June 30, 1900.	Year ended June 30, 1899.
On passenger trains.....	995,395	1,049,037
On freight trains.....	1,302,764	1,141,140
On mixed trains.....	182,021	207,962
Total miles earning revenue.....	2,480,180	2,398,139
Piloting, switching & light running.....	763,065	683,812
Engine traffic—miles run.....	3,243,245	3,081,951

CAR MILEAGE.

	Year ended June 30, 1900.	Year ended June 30, 1899.
Passenger.....	4,086,541	5,107,461
Freight.....	31,746,397	29,124,195
Total car miles.....	36,732,938	34,231,656

Freight & passenger train earnings per ton & per passenger mile—year ended June 30, 1900.

FREIGHT.

	Year ended June 30, 1900.	Year ended June 30, 1899.
Revenue train miles.....	1,424,111	1,294,572
Freight earnings.....	\$2,229,552 12	\$2,001,409 98
Earnings per freight train mile.....	\$1 56	\$1 54
Tons carried.....	2,658,925	2,801,721
Tons carried one mile.....	252,551,609	237,836,511
Earnings per ton per mile.....	.0088	.0084

PASSENGER.

	Year ended June 30, 1900.	Year ended June 30, 1899.
Revenue train miles.....	1,056,069	1,121,888
Passenger train earnings.....	\$1,107,930 05	\$1,085,923 66
Earnings per passenger train mile.....	\$1 04	\$0 96
No. of passengers carried.....	1,601,726	1,603,552
No. of passengers carried one mile.....	43,707,921	42,600,024
Earnings per passenger per mile.....	.0222	.0218

Earnings from express & mail are included in passenger train earnings.

Earnings per passenger mile do not include express & mail.

The directors were re-elected as follows:—Chairman, C. M. Hays; President, E. C. Smith; Vice-President & General Manager, E. H. Fitzhugh; Solicitor, C. M. Wilds; other directors, D. D. Ranlett; W. S. Webb, J. W. Stewart, J. G. McCullough, E. H. Baker, H. B. Day, A. F. Walker, S. E. Kilner, John Bell.

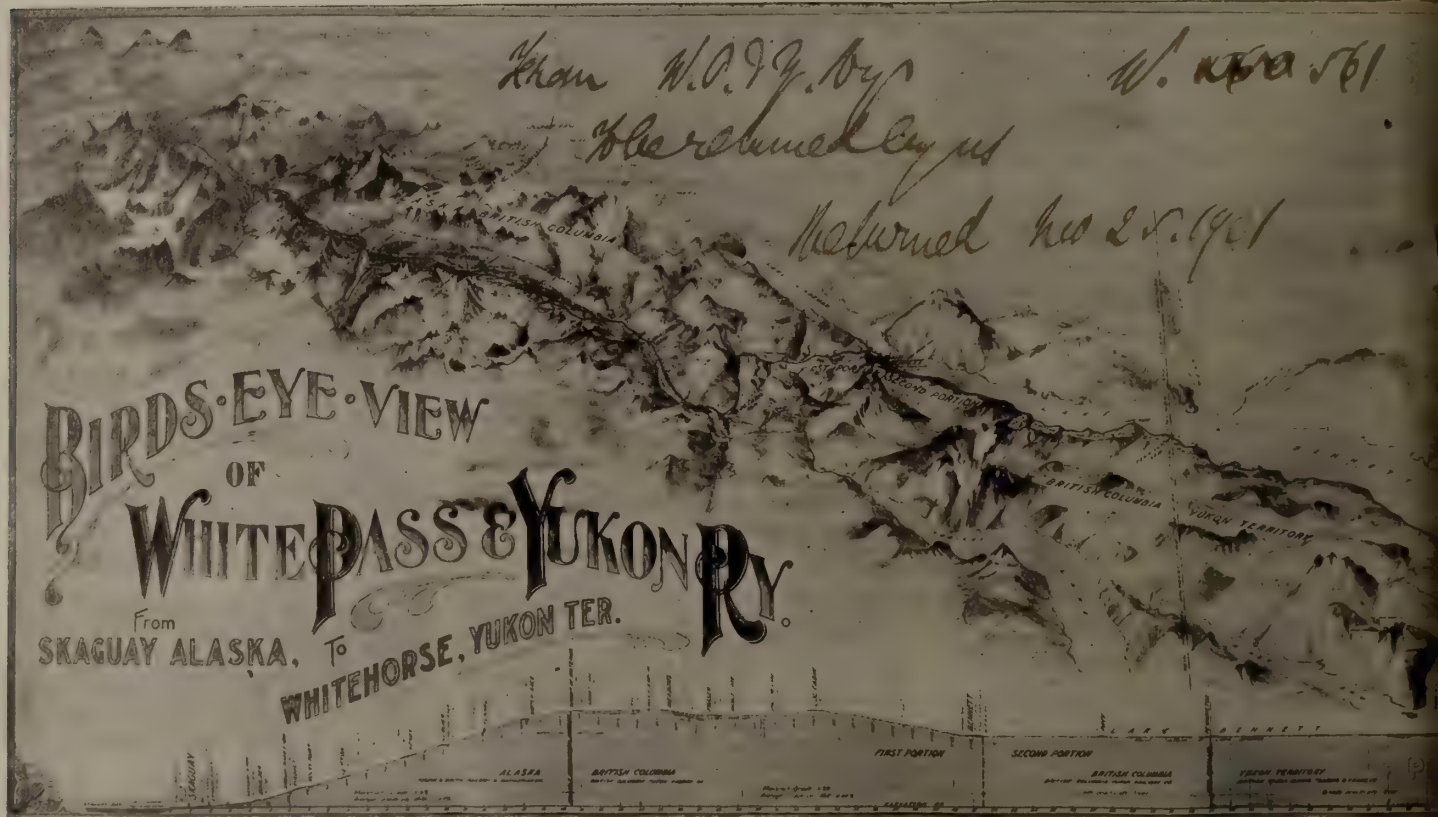
President Shaughnessy's Western Trip.

As mentioned in our last issue, President Shaughnessy, of the C.P.R., left Montreal Sept. 20, in his private car Manitoba, for a trip of inspection over the line to the Pacific coast. He was accompanied by three other directors, R. B. Angus, E. B. Osler, & W. D. Matthews, & by P. A. Peterson, Chief Engineer, & A. R. Creelman, Q.C., of Toronto. Manager Tait, of the eastern lines, & General Superintendent Spencer, of the eastern division, accompanied the President to Fort William, where he was met by Manager Whyte, of the western lines, & General Superintendent Osborne, of the western division. Mr. Whyte accompanied him throughout the trip to the Pacific coast, Mr. Osborne also going over the western division with the party.

In an interview at Winnipeg, Mr. Shaughnessy said in regard to the decision of the Manitoba Legislature to tax railways:—"While we are always willing to contribute our legitimate share to the expenses of the government of the country, I cannot say that I am satisfied with the Provincial Government's action in this respect. It remains to be seen in the future whether the effect will be generally beneficial, or whether such a policy will have the effect of discouraging railway construction in the province. There is a danger that it may have the latter effect."

In regard to the Manitoba government's proposition for government ownership of railways, he said:—"I think that the government's ownership theory, & the benefits to be derived therefrom in the matter of railways, which is entertained by but few people in this country, receives a most complete denial in the experience of the working of the C.P.R. I would like Premier Macdonald or anyone else to point to any system in the world which carries traffic at rates so low as ours, & pays wages on the same scale. A reference to the reports of any of the railway systems owned by governments will prove this. Not only are our rates lower, but our wages are very much higher."

Speaking of the elevator bill passed at the last session of the Dominion Parliament, he said:—"I think it is the duty of every person



& company interested to give the bill a fair trial. We, as a Company, have no interests in such respect, save for the best facilities for our traffic & the convenience of the shipper. The new regulations may prove a source of inconvenience to the Company as well as to the public. We will, however, give our utmost co-operation in carrying out any measure that will assist the farmer in grading & marketing his wheat."

In answer to an inquiry as to the probability of a C.P.R. fast Atlantic service, he said:—"There is none at present. It is very difficult just now to get ships built, the shipbuilding yards are all so full. This question is not a live one for the moment."

While at Winnipeg Mr. Shaughnessy met the members of the city council. Representatives of the press were not admitted, but the Winnipeg Tribune gives the following account of the proceedings:

Mr. Shaughnessy said that if the city council & the citizens of Winnipeg would but meet the C.P.R. Co. on a reasonable basis the Co. was willing to commence operations within a week for the building of a \$1,000,000 station & hotel. Before these buildings could be erected a subway or overhead bridge would certainly have to be constructed. This latter, with compensation to the property owners, would cost about \$120,000. The benefits to be derived from such subway or bridge would be mutual. The city would gain as much as the Co., to say nothing of the great general benefit to the city by the new station & hotel. He would like the city to meet the Co. in a friendly spirit, but he might inform the aldermen that the C.P.R. had had similar experiences to the present one with Winnipeg, in other cities. He instanced several cases in which, by an appeal to the Railway Committee of the Privy Council by the Co., that body had compelled the city to pay half the cost of such improvements, in some cases more than half the cost; in Toronto, for instance, the city had been compelled to bear the whole cost of a similar improvement. He believed that if the Co. appealed to the Railway Committee

of the Privy Council, Winnipeg would be compelled to bear at least half the cost of such improvement, seeing that the benefits to be derived were of such mutual character. The council had offered early in the year to bear half the expense of the subway, the amount to be deducted from certain taxes which it was claimed could be collected from the C.P.R. in the future. The action of the Provincial Government had settled this question, as the city could not collect the taxes now. He would say further that if the city would meet the Co. in the matter the C.P.R. would not object to paying frontage taxes, school taxes, & business taxes on the hotel property, notwithstanding the Provincial Government's action. What he proposed was that the city should bear half the cost of the subway & compensation for its construction, the whole to be \$60,000.

It is understood that the aldermen were divided on the matter. Some of them demanded that a by-law be submitted to the ratepayers before anything was done. Others were afraid that if a by-law was submitted it would be defeated, & then the C.P.R. would appeal to the Privy Council, & compel the city to pay half the cost of subway. Then the Co. could please itself whether it built hotel or not. The council may take any one of three courses: 1. To give the Co. the amount demanded, taking it out of the current year's taxes without submitting by-law. 2. To put by-law before the people. 3. To get decision of the Privy Council.

Since the meeting referred to negotiations have been carried on between the Co. & the city, & it is expected a mutually satisfactory settlement will be arrived at.

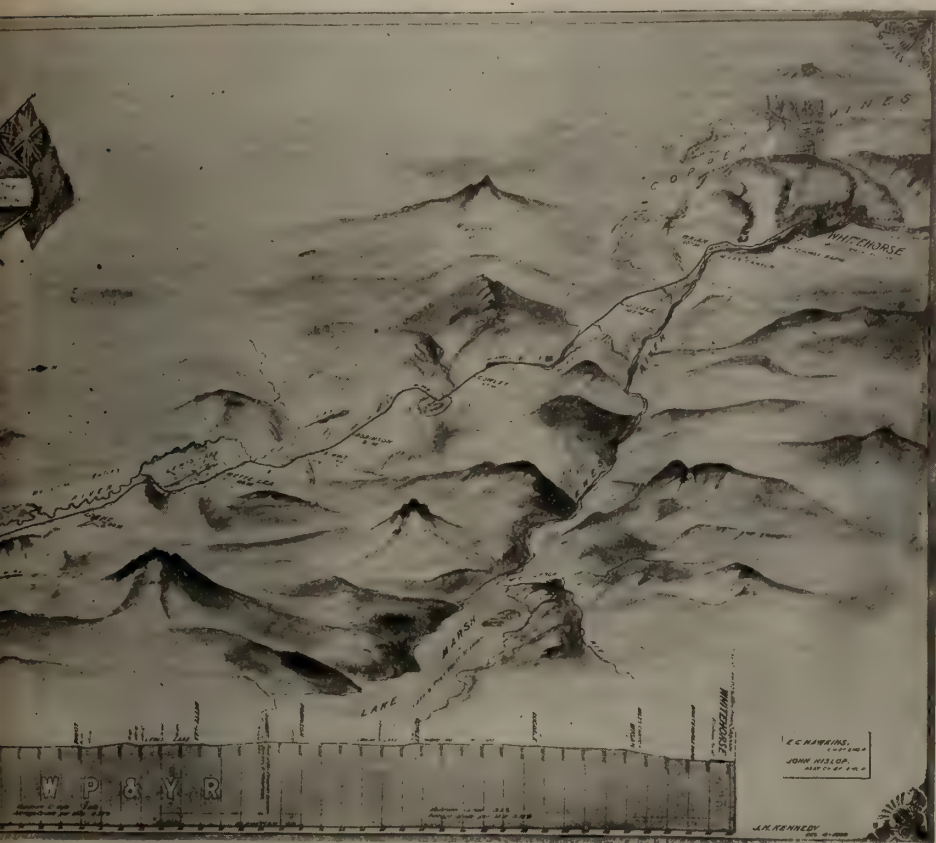
Mr. Shaughnessy & his party were entertained at dinner at the Manitoba Club, Winnipeg, about 100 of the leading citizens being present, Chief Justice Killam presiding. In a pleasing speech acknowledging the toast of his health, Mr. Shaughnessy expressed the hope that their next meeting might be in the Co.'s new hotel in Winnipeg.

The Winnipeg Board of Trade appointed a

committee to wait on the C.P.R. management & point out that the people of Winnipeg labored under a sense of injustice, from the fact that the Co. would not issue return trip tickets from Winnipeg to the East on terms equal to tickets from the East to Winnipeg & back. For instance, a person in Winnipeg has to pay \$75 for the round trip, Winnipeg to Montreal & return, while a Montrealeur desiring to go to Winnipeg can purchase a return ticket for \$60. The committee was instructed to endeavor to get a system of return tickets arranged for from Winnipeg to eastern points & return on the same basis as tickets issued from eastern points to Winnipeg & back. In his speech at the Manitoba Club Mr. Shaughnessy said the policy of the Co. in the past had been to offer inducements to people to visit the West, but not to offer the same inducements for them to get out again, but that time had gone by, & the Co. had decided to meet the wishes of the Board of Trade. This means that in future return tickets from Winnipeg to points in Ontario or to Montreal will be materially reduced in price.

From Winnipeg, Mr. Shaughnessy went via the Crow's Nest Pass line to the Kootenay District of B.C. Capt. Troup, Superintendent of the Kootenay lines & steamers, met the party at Kootenay Landing. After crossing Kootenay Lake they went over the new line from Balfour to Nelson, where they were met by General Superintendent Marpole of the Pacific Division. After leaving Nelson they visited Rossland & went over the new line to Midway, afterwards going up the Arrow Lakes & on by the main line to Vancouver.

At Vancouver Mr. Shaughnessy held a conference with the Board of Trade. President Buscombe brought up the question of the inadequate steamship service between Vancouver & the North. He said the matter had been discussed many times before, & the merchants of Vancouver were all agreed that something should be done. During the past season, between 13,000 & 15,000 tons of freight had been shipped from Vancouver to the North. This at \$10 per ton amounted to a



large sum. It was absolutely necessary for the service to be improved if passengers were to be brought from the North to Vancouver. It was felt that every passenger from the North as a usual thing spent \$100 to \$500 when he arrived from the Interior, & by their going down to Seattle the loss of the legitimate business of Vancouver was great. He enumerated the eight passenger & freight steamers of the C.P.N. Co., of Victoria, & of the Union Steamship Co., of Vancouver, & gave the details of operation. He thought if the C.P.R. Co. would put on a couple of very fast steamers, from 18 to 20 knot boats, they would pay for themselves in a season or two. It was stated that they would cost about \$150,000, being capable of carrying from 600 to 1,000 tons of goods & 120 passengers. He could say that the merchants of Vancouver were so interested in their pockets that they would guarantee the interest on a part of the sum at least that would be required to inaugurate the service. He thought, too, the City Council would follow the lead of the business men in the matter. It was a case of mutual advantage, for the more goods that were shipped North from Vancouver the more would be carried by the railway across the continent. He hoped the Co. would take an interest in it at once & that all would profit by the business accruing. One firm in Vancouver had this year shipped 1,500 tons of goods, which showed what a large trade there was.

Mr. Shaughnessy referred to the Co. having put on two steamers at the beginning of the Klondike excitement. The losses at that time were so appalling that they were afraid to continue the service. Then, too, they rather disfavoured the idea of interfering with the business of existing steamship lines. He was afraid there was a serious handicap in the fact that trade had run in the lines of Seattle & Puget Sound, & that it would be difficult now to change it.

Mr. Buscombe called attention to the fact that 85% of the business that passed through Skagway was of Canadian origin. He thought that with good boats Vancouver would at

once regain the trade, just the same as had been the experience in the Rossland district.

Mr. Shaughnessy said the boats put on at first by the Co. were not adapted to the business. Another point he brought out forcibly was that if the Co. put on two fast steamers, that would be large & commodious & strictly up-to-date, they would be confined by necessity to the business afforded by Vancouver & Victoria to Skagway. They could, according to law, make no stops in U.S. territory other than Skagway, & they could not take goods from Seattle & Tacoma; whereas, the American boats, such as the City of Seattle & other fast vessels, were allowed, by being American, to trade both in Seattle & in Vancouver, & would thus have an advantage over the Canadian boats, no matter what their facilities here. "The question is," said Mr. Shaughnessy, in conclusion, "do you think that the tonnage here is sufficient to warrant such an undertaking as is suggested. Would we not have the protest of the local lines, if we went into that business?"

Mr. Buscombe said that the merchants of Vancouver felt the case so pressing that they were willing to put their hands in their pockets & guarantee interest on a good sum. The service was now absolutely inadequate, & it was impossible to expect passengers to travel on the second & third & fourth rate boats that now come down to B.C. ports, when there were better ones on the Sound.

Mr. Shaughnessy said that the Co. had got somewhat of a scare at the result of its former experience in the North. If it had not been for the Philippine war & a few other terrible events, the Co. would have lost considerably in its deal of the two steamers. He asked Mr. Buscombe to supply him with all the data obtainable & he would lay the whole question before the board. The Co. would do everything in its power to keep the trade for Vancouver & Victoria, but, if possible, it did not care to compete with other lines of boats.

Mr. Shaughnessy returned to Montreal Oct. 11, after having travelled about 8,000 miles during his trip. Being asked whether the C.

P.R. earnings were likely to suffer as a result of the smaller grain crop, he replied that such would necessarily be to some extent the case. "However," he added, "our earnings will not by any means show as large a relative falling off as the volume of the grain transportation business will be smaller, which shows that we are acquiring a considerable general freight traffic apart from the grain."

He said that the C.P.R. was steadily building additional branch lines, or spurs, from its main lines into the mining country. In this the Co. was following a policy which was altogether unique in railway annals. Unlike other railways similarly situated, the C.P.R. had asked no guarantee from the mining communities for the construction of such spurs, but had undertaken the work at its own expense & at its own risk. In other words, the railway stood to gain or lose as a simple business proposition, & nobody else was asked to contribute a cent.

C. M. Hays Leaving the G.T.R.

The persistent rumors about Mr. Hays retiring from the position of General Manager of the G.T.R. have at last proved to be well founded, as on Oct. 28 he stated that he had accepted the Presidency of the Southern Pacific Co., in succession to the late C. P. Huntington. It is said he will sever his connection with the G.T.R. on Dec. 31, & then proceed at once to San Francisco, which will be his headquarters.

A New York despatch, referring to the appointment, says: "Vice-President Huntington's acquiescence in the selection of Mr. Hays is said to be cordial. Although having a natural ambition to succeed his uncle as President, he recognizes Mr. Hays' fitness for the place, inasmuch as it has been the desire of the controlling stockholders to put the best man obtainable at the head of the operating department. The younger Mr. Huntington has not had the experience as a railway operating man that Mr. Hays has had. In recent years he has been the personal representative of his uncle in San Francisco, while the traffic & operating departments of the Southern Pacific were in the hands of Vice-Presidents Stubbs & Kruttschnitt. H. E. Huntington is expected to retain the office of First Vice-President as long as he chooses to keep it. As the inheritor of one-third of his uncle's large interest, he becomes one of the most influential of individual stockholders. The Huntington estate & the foreign holdings represented by Speyer & Co. are said to control the property, & a person conversant with the actual conditions estimates that Speyers & Co. represent about one-quarter of the entire capitalization of \$200,000,000."

Mr. Hays was born at Rock Island, Ill., in 1856, & on Nov. 10, 1873, entered the Passenger Department of the Atlantic & Pacific Ry. at St. Louis, Mo.; from Jan. 2, 1874, to Mar. 9, 1874, he was employed in the auditor's office, & from Mar. 9, 1874, to Jan. 1, 1877, as clerk in the General Superintendent's office of the same road; from Jan. 1, 1877, to April 1, 1884, he was Secretary to the General Manager of the Missouri Pacific Ry.; & from April 1, 1884, to Oct. 1, 1886, Secretary to the General Manager of the Wabash, St. Louis & Pacific Ry.; from Oct. 1, 1886, to July 1, 1887, he was Assistant General Manager of the same road; from July 1, 1887, to July 1, 1889, he was General Manager of the Wabash Western Ry.; on July 1, 1889, he was appointed General Manager of the Wabash Railroad Co. (successor to the Wabash Western & Wabash R'ys) & in Feb., 1894, was appointed Vice-President & General Manager of the Wabash Railroad. On Dec. 31, 1895, he severed his connection with the Wabash Co. to accept the position of General Manager of the G.T.R. System, under a 5 years' contract, at a salary of \$25,000 a year, which was after-

wards increased to \$35,000, & he is said to have received an additional sum from the Central Vermont Ry.

Mr. Hays married Clara J., daughter of Wm. H. Gregg, St. Louis, Mo. In religion he is a Presbyterian.

The other members of the Executive Department of the S. P. Co. are, C. H. Tweed, Chairman of the Board, New York; a son of the late C. P. Huntington, H. E. Huntington, who is 1st Vice-President, with headquarters at San Francisco; the 2nd Vice-Presidency is vacant; J. C. Stubbs, 3rd Vice-President, at San Francisco, with charge of the Traffic Department; J. Kruttschnitt, 4th Vice-President, at San Francisco, with charge of transportation; & A. C. Hutchinson, President of the Morgan's Louisiana & Texas R.R. & S.S. Co. New Orleans.

The Southern Pacific Co. was organized in 1884, under the laws of Kentucky, its authorized capital stock being \$150,000,000. In 1885 it began to acquire different railways & now operates the following:

Central Pacific R.R.	1,487.91 miles.
Oregon & California R.R.	655.76 "
Northern Ry.	390.74 "
Northern California Ry.	53.72 "
California Pacific R.R.	115.51 "
Southern Pacific R.R. of California	1,678.11 "
Southern Pacific R.R. of Arizona	392.93 "
Southern Pacific R.R. of New Mexico	167.30 "
South Pacific Coast Ry.	104.00 "
Louisiana Western R.R.	147.23 "
Morgan's Louisiana & Texas R.R.	283.35 "
Galveston, Harrisburg & San Antonio Ry.	936.90 "
Texas & New Orleans R.R.	259.83 "
Iberia & Vermillion R.R.	16.13 "
Louisiana Western Extension R.R.	7.00 "
Galveston, Houston & Northern Ry.	56.50 "
New York, Texas & Mexican Ry.	91.00 "
Gulf, Western Texas & Pacific Ry.	111.17 "
Transportation Lines	7.90 "
Total rail mileage	6,962.99 "
Steamer lines	7,276.00 "
Grand total	14,238.99 "

The S. P. Co. is the principal stockholder in the following lines, which are operated by their own organizations:

Austin & Northwestern R.R.	107.86 miles.
Central Texas & Northwestern Ry.	12.36 "
Fort Worth & New Orleans.	40.05 "
Galveston, Harrisburg & San Antonio.	919.43 "
Gulf, Western Texas & Pacific	111.20 "
Houston & Texas Central R.R.	507.23 "
New York, Texas & Mexican Ry.	91.00 "
Texas & New Orleans R.R.	215.72 "
Total	2,004.85 "
Direct Navigation Co. water line.	75.00 "

The S. P. Co. is also largely interested in the Mexican International R.R., but does not control a majority of the stock.

The S. P. Co.'s railways are situated in Oregon, California, Nevada, Utah, Arizona, New Mexico, Texas & Louisiana. The system is in reality a transcontinental one, extending from Portland, Oregon, to New Orleans, La., 3,261 miles. Another important line is the old Central Pacific, between Sacramento, Cal., & Ogden, Utah, 743 miles.

The Co.'s steamships ply between New Orleans, Key West & Havana, & between New Orleans & Port Tampa.

For the year ended June 30, 1898 (the latest figures we have at hand) the receipts of the Southern Pacific Co. were \$58,477,498.54, & the disbursements \$54,354,895.93, leaving a balance of \$4,122,602.61. Out of this there was spent \$1,299,258.03 in betterments & additions, leaving a surplus of \$2,823,344.58.

The gross earnings per mile were \$7,538.05, the gross expenses per mile \$4,668.25; the net earnings per mile \$2,869.80, & the ratio of expenses to earnings 61.93%. During the year the Co. sold 32,656.53 acres of land, at an average price of \$2.73 per acre, but 118,682.32 acres were returned with cancelled contracts.

Some interesting particulars about the S. P. system were given in an obituary reference to the late C. P. Huntington, on pg. 268 of our last issue.

Twenty-four hour system in Spain.—The Spanish Government has issued notice that in the railway, mail, telegraph, telephone & steamship service of that country, & in all ministerial offices, the courts & public works, the computation of the hours, after Jan. 1, is to be made by the numbers 1 to 24, beginning at midnight. Midnight will be designated as 24, but for the next 59 minutes a cipher will be used; for instance, 12:30 will be called 0:30. Greenwich time is to be the standard.

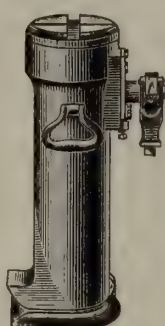
Steel Rails Prices.—It is authoritatively announced that the rail makers in the U. S. have reduced the price of rails for large orders from \$35 to \$26 per gross ton, delivered on cars at either Western or Eastern mills. Based on the past year's record, it is probably safe to assume that this price will hold good during the coming year. There seems to be no doubt that this will result in placing large orders, for it is doubtless true that orders have been held for some time in expectation of lower prices. Although \$26 is probably not as low a price as the railway companies would wish to buy rails for, still at this price they can have the satisfaction of knowing that it is \$5 a ton less than English railway companies pay for their rails, & about \$6 a ton less than European Continental companies pay. It is, doubtless, a fact that the U. S. is now the cheapest rail market in the world.—Railroad Gazette.

Commissioner Chipman, of the Hudson's Bay Co., is spending some time in Montreal in consequence of the visit of the Governor of the Co., Lord Strathcona, to Canada.

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50 STYLES. 8 TO 70 TONS CAPACITY.



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"WHAT'S THE TIME?"

A booklet with this title, just published by the Chicago, Milwaukee & St. Paul Railway, should not only be in the hands of every traveler, but should have a place on the desk of every banker, merchant or other business man.

The four "Time Standards" which govern our entire time system and which are more familiar to most of the travelling public than any others little understood, are so fully explained and illustrated by a series of charts, diagrams & tables that any one who chooses can become conversant with the subject in question. There are also some twenty-four tables by which, almost at a glance, the time at any place being given, the hour and day can be ascertained in all the principal cities of the world.

A copy of this pamphlet may be had on application to Geo. H. Heafford, General Passenger Agent, Chicago, enclosing two-cent stamp to pay postage.

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Canadian Ticket Agents' Association.

The 14th annual meeting was held at Hamilton, Oct. 9 & 10, the following members being in attendance:—G. N. Asselstine, C.P.R., Gananoque, & wife; S. Burrows, C.P.R., Belleville, & wife; W. H. Bunton, G.T.R., Peterborough; E. R. Blow, C.P.R., Whitby; A. H. Baird, C.P.R., Paris, & wife; A. C. Brown, C.P.R., Guelph, & wife; J. L. Boyes, G.T.R., Napanee, & wife; Miss M. A. Ball, C.P.R., Goderich; A. Berube, C.P.R., St. Thomas; C. E. Bunting, C.P.R., Toronto; J. Clark, C.P.R., Renfrew, & wife; A. Calder, C.P.R., Winnipeg, & wife; R. J. Craig, C.P.R., Cobourg, & wife; J. D. Conway, G.T.R., Hespeler; R. R. Casement, C.P.R., Madoc, & wife; R. Cox, C.P.R., Enterprise; R. H. Carney, G.T.R., Sault Ste. Marie, & wife; C. Chubb, G.T.R., Wallaceburg; R. Clanhahan, C.P.R., Glencoe, & wife; H. L. Cowan, G.T.R., Mount Forest, & wife; Jno. Carter, C.P.R., Sundridge, & wife; F. R. Chalmers, C.P.R., Morrisburg, & wife; E. De la Hooke, G.T.R., London, & wife; Jas. Douglas, G.T.R., Dobbington, & wife; A. J. Davis, C.P.R., Port Perry, & wife; F. B. Edgecombe, C.P.R., Fredericton, N.B., & wife; W. Fulton, C.P.R., London & wife; R. J. Fletcher, C.P.R., Barrie; J. H. Flock, Q.C., Honorary Counsel, London; W. E. Gladney, G.T.R., Marmora, & wife; J. A. Goodearie, N.Y.C., Kingston, & wife; W. J. Grant, C.P.R., Hamilton, & wife; J. P. Hanley, G.T.R., Kingston; J. A. Hacking, G.T.R., Listowel, & wife; W. H. Harper, C.P.R., Chatham, & wife; F. M. Hawley, G.T.R., Cobourg, & wife; F. R. Hodgins, G.T.R., Clinton, & wife; M. A. Halliday, C.P.R., Chesley, & wife; T. Howard, C.P.R., Hastings, & wife; J. H. Hayes, C.P.R., Simcoe, & wife; C. W. Irwin, Toronto; W. Jackson, C.P.R., Clinton, & wife; J. H. Jackson, C.P.R., Georgetown; J. F. Kellock, G.T.R., Perth, & wife; W. Lahey, C.P.R., Brantford, & wife; G. D. La Course, G.T.R., Berlin; T. Long, C.P.R., Port Hope, & wife; A.



Red 10 F. W. CHURCHILL, *Red 10*
President C. T. A. Association.

mara, C.P.R., Walkerton, & wife; E. McLaughlin, C.P.R., Napanee, & wife; W. A. MacCallum, C.P.R., Buckingham, Que., & wife; W. H. McCaw, G.T.R., Port Perry, & wife; W. H. McGannon, G.T.R., Morrisburg; A. McKean, C.P.R., Mount Forest, & wife; W. H. C. Mackay, C.P.R., St. John, N.B.; W. H. McFarlane, C.P.R., Paisley, & wife; W. McIlroy, C.P.R., Galt, & wife; C. A. Nettleton, C.P.R., Penetang, & wife; W. W. Porte, C.P.R., Brighton, & wife; J. Paul, M.C.R., London, & wife; R. P. Perry, C.P.R., Bracebridge, & wife; S. H. Palmer, M.C.R., St. Thomas, & wife; L. Peine, C.P.R., New Hamburg, & wife; N. Page, C.P.R., Hull, Que., & wife; W. E. Rispin, G.T.R., Chatham, & wife; J. A. Robb, C.P.R., Valleyfield, Que., & wife. A. J. Roos, C.P.R., Berlin; A. E. Raynes, C.P.R., Tilsonburg, & wife; J. H. Sherin, C.P.R., Lakefield; W. G. Stovel, C.P.R., Walkerton. B. Travers, C.T.R., Paris, wife & son; M. N. Todd, G.T.R., Galt; J. R. Tierney, C.P.R., Arnprior, & wife; W. B. Tomlinson, G.T.R. & Wabash, Simcoe, Ont.; D. B. Taylor, G.T.R., Tweed; C. L. VonGuten, G.T.R., Blenheim; J. C. Whitcho, C.P.R., Parry Sound, & wife; W. Ward, G.T.R., Dresden, & wife; A. H. Whittmaak, C.P.R., Hespeler, & wife; G. T. Whittier, G.T.R., Trenton; C. C. Young, L.E. & D.R., London.

Among the guests & visitors present were: W. Askin, Gen. Agent, Northern Navigation Co. & Northwest Transportation Co., Toronto; B. H. Bennett, General Agent, Chicago & Northwestern Ry., Toronto; J. N. Bastedo, Passenger Agent, Atcheson, Topeka & Santa Fe Ry., Detroit; R. M. Boggs, Hotel Brant, Burlington; M. Barton, Northern Navigation Co., Barrie, & wife; F. F. Backus, General Freight & Passenger Agent, T. H. & B. Ry., Hamilton; H. F. Carter, Michigan, Passenger Agent, Union Pacific Ry., Detroit; H. F. Chaffee, City Passenger Agent, R. & O. N. Co., Montreal; J. M. Copeland, C. M. & St. P. Ry., Toronto, & wife; G. R. Cheshbrough, Western Passenger Agent, Lehigh Valley Ry., Buffalo; C. E. A. Carr, General Manager London Electric Ry.; M. C. Dickson, District Passenger Agent, G.T.R., Toronto; J. P. Dickson, Secretary, Canadian Railway Accident Insurance Co., Ottawa; W. T. Dockrill, Travelling Passenger Agent, C.P.R., Toronto, & daughter; G. H. Doherty, Niagara Navigation Co., Toronto; J. F. Dolan, District Passenger Agent, R. & O. N. Co., Toronto, & wife; L. Drago, Canadian

Passenger Agent, New York Central Ry., Buffalo; A. W. Ecclestone, District Passenger Agent, Nickel Plate Road, & Southern Passenger Agent, Central Vermont Ry., New York; E. Fisher, General Superintendent T.H. & B. Ry., Hamilton; W. A. Fletcher, Florida East Coast Ry., Chicago; F. P. Fox, Division Passenger Agent, Delaware, Lackawanna & Western Ry., Buffalo; B. Gavett, District Passenger Agent, Pere Marquette Ry., Detroit; C. W. Graves, District Freight & Passenger Agent, Great Northern Ry., U.S.A., Toronto, & wife; A. A. Heard, Assistant General Passenger Agent, Lehigh Valley Ry., New York; F. T. Hendry, General Agent Passenger Dept., Santa Fe Ry., Detroit; H. P. Heming, Director & Secretary Muskoka Tourist Hotel Co., Hamilton; T. Henry, Traffic Manager R. & O. N. Co., Montreal; W. F. Herman, General Passenger Agent, Cleveland & Buffalo Transit Co., Cleveland; H. B. Jagoe, General Eastern Passenger Agent, West Shore R.R., New York, wife & mother; H. W. Jameson, Travelling Passenger Agent, Pere Marquette R.R., Milwaukee; R. S. Lewis, Canadian Passenger Agent, Lehigh Valley R.R., Toronto; G. W. McCaskey, District Passenger Agent, Northern Pacific R.R., Toronto; A. J. McDougall, General Eastern Passenger Agent, Illinois Central R.R., New York; A. H. Notman, Assistant General Passenger Agent, C.P.R., Toronto; C. A. Pipon, General Agent for Ontario, White Star Line, Toronto; C. S. Proctor, Travelling Passenger Agent, G.T.R., Toronto; J. A. Richardson, Passenger Agent, Wabash R.R., Toronto; W. Robinson, General Travelling Agent, I.C.R., Toronto; J. W. Slosson, General Agent Denver & Rio Grande R.R., Chicago; E. O. Soule, General Agent, Passenger Dept., Burlington, Cedar Rapids & Northern Ry., Cedar Rapids; S. J. Sharp, Western Agent, Elder Dempster Steamships, Toronto; R. H. Spencer, Treasurer Central Ontario Ry., Trenton; A. J. Spurr, Travelling Passenger



M. MCNAMARA,
and Vice-President C. T. A. Association.

Leach, G.T.R., Millbrook, & wife; F. F. Lawrence, G.T.R., Goderich, & wife; C. E. Morgan, G.T.R., Hamilton, & wife; W. H. Montgomery, G.T.R., Galt, & wife; W. B. Moorehouse, C.P.R., Sault Ste. Marie; J. D. Meekison, C.P.R., Strathroy, & wife; S. B. Morris, C.P.R., Rodney, & wife; R. A. Mason, C.P.R., Markham, & wife; J. A. Martin, C.A.R., Pembroke, & wife; J. A. McKenzie, G.T.R., Woodstock; M. McNamara,



EDWARD DE LA HOOKE,
Secretary-Treasurer C. T. A. Association.

Agent, Burlington Route, Chicago, & wife; A. J. Taylor, Agent, Chicago, Milwaukee & St. Paul Ry., Toronto; J. D. Tenbroeck, Travelling Passenger Agent, Union Pacific System, Albany, N.Y.; H. E. Watkins, Great Northern Ry., U.S.A., Toronto; G. B. Wylie, Travelling Passenger Agent, Illinois Central R.R., Buffalo, & wife; J. Wallace, General Agent, G.T.R., Hamilton, & the Editor of THE RAILWAY & SHIPPING WORLD.

On arriving at the headquarters at the Royal Hotel, Hamilton, Secretary De La Hooke presented each member with an itinerary in the form of a coupon ticket, headed with the following conditions:—

1. That I will attend the annual meeting of the Canadian Ticket Agents' Association in Hamilton on Oct. 9, 10, & comply with the conditions of circular no. 2 issued by the Secretary-Treasurer of the Association.

2. I agree to keep in line with the other members of the aggregation from start to finish, & should I get side tracked I agree to furnish a substitute for the banquet which is to be held at the Royal Hotel on Oct. 10th, & if married, to bring my wife; if I travel on a single ticket that my intended shall accompany me.

3. I agree to take a part in the discussion of mutual interest to the association, & to frame resolutions pregnant with force & calculated to admit of no equivocation, & to do a lot of other things not on the official programme.

4. I reserve to myself the individual right to uphold the special claims of the corporation I represent, but will not be held person-

ally responsible if I should lie under a wrong impression in regard to official statements.

On October 9, at 2.30 p.m., the members, the ladies & the guests assembled in the City Hall, where Mayor Teetzel welcomed them on behalf of the city. President F. W. Churchill, being unable to be present, owing to illness, 1st Vice-President Jackson responded on behalf of the Association.

Then a trip was made by special electric cars to the historic Dundurn Castle, formerly the home of the late Sir Allan MacNab & Senator MacInnes, & now owned by the city & used as a public park. After a delightful stroll through the picturesque grounds the cars were again taken to the foot of the Hamilton & Barton Incline Ry., which was ascended to the top of "the mountain," from which visitors obtained a beautiful view of the city, of Lake Ontario, & of the Dundas valley, &c. In the evening Gore Park & the public buildings were beautifully illuminated by electricity, & most of the members & guests attended a concert by the 13th Battalion band.

THE ANNUAL MEETING.

On Oct. 10, at 10 a.m., the annual business

meeting was held. Secretary De La Hooke's report showed a gain of 10 members, 19 having joined & 10 having withdrawn. The financial statement shows over \$200 in hand.

Considerable time was spent in considering amendments proposed to the constitution, the principal changes made being as follows: The objects of the Association are declared to be for educational, beneficial & social purposes. The annual subscription was raised from \$1 to \$2, which, however, will include a yearly subscription to THE RAILWAY & SHIPPING WORLD, which is in future to be supplied to all members of the Association. Heretofore it has been the practice at each annual meeting to fix the place & date for the next annual meeting. This has been changed so that the place only shall be fixed & the date left to the Executive Committee. The Executive Committee is to have a chairman with power to call meetings, & three members are to constitute a quorum. The clause relating to rate-cutting has been transferred to the by-laws. It is provided that members of the Association ceasing to be coupon ticket agents forfeit all rights of members.



The Barrett Track Jack....

Recommended as a Standard by the

Roadmasters' Association of America.

These Jacks are made with Malleable Iron Frames, Steel Pawls, Machinery Steel Bearings and Pivots, forged Steel Rack. The wearing parts are removable and readily renewable at slight expense. The rectangular base gives great lifting strength and fits into close quarters better than other shaped stands. Adaptable to either high or low set loads.

The Barrett Jack is the safest, best and strongest known to the railroad world to-day.

Lifting Capacity 10 to 15 tons.

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Marion and Martin Avenues, Allegheny, Pa.

Stock carried by **JAMES COOPER, Agent,**
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BREWERY,**

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Fine

ALES, EXTRA PORTER

... AND ...

PREMIUM LAGER.

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CHOICE MALT FOR SALE.

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Brand ..

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IF time has a commercial value;
promptness secures business;
immediate information is required;
an answer is wanted, and wanted quick;
you are not in business for exercise:

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AND TELEPHONE.**

The Bell Telephone Company of Canada

will be pleased to furnish details.



HAMILTON AND BARTON INCLINE RAILWAY.

By-laws were adopted for the first time, their principal provisions being as follows:

Every member of the Association must maintain tariff rates, & should any member offend against this article, & be charged by another member with such offence, & sufficient evidence be submitted to the executive of the Association to prove the charge, the offending member's certificate shall be withdrawn. And if a member of the Association shall submit to the executive committee similarly conclusive proof of offence against an agent not a member of the Association, it shall be the duty of the executive committee to take the matter up in its member's behalf, & see that, if possible, a remedy is provided. This law to be applicable to both the railway & steamship ticket business.

The legitimate expenses of the members of the executive & other committees attending meetings, other than the annual, shall be paid out of the funds of the Association.

Annual dues shall be payable in advance on Jan. 1 each year, & and shall be for one year, ending on Dec. 31. Members who have not paid their dues on or before July 1 for the then current year, deprive themselves from obtaining transportation through the Association to attend annual convention & of all other privileges. If a member neglects to pay his dues for 12 months, & having received notice from the Secretary, his name shall be dropped from the membership.

No agent shall be eligible to attend the annual meeting unless application for membership shall have been made on or before Sept. 1 of the year in which the meeting is to be held.

Any member who has voluntarily withdrawn from membership & seeks readmission, will be required to pay an amount equal to the subscription for each year he stood out.

When a company's certificate of appointment to an agency reads in the name of a firm of two or more persons, and both, or more members of the firm, desire to become members of the Association, it will be necessary that each one pay the entrance fee & annual subscription.

Any member misusing or transferring any privileges granted by railway, steamship or other transportation companies shall, on the offence being proved against him, forfeit his membership, & if the gravity of the offence warrants it, the matter shall be reported to the officials of the company he represents.

It was resolved that hereafter THE RAILWAY & SHIPPING WORLD be the recognized organ of the Association & that it be supplied

at the expense of the Association to all members.

The election of the officers resulted in all of them being re-elected by acclamation, except the Executive Committee, in which two changes were made. The list for the current year is as follows:—President, F. W. Churchill, Collingwood; 1st Vice-President, W. Jackson, Clinton; 2nd Vice-President, M. McNamara, Walkerton; Secretary-Treasurer, E. De La Hooke, London; Honorary Counsel, J. H. Flock, Q.C., London; Auditor, S. H. Palmer, St. Thomas; Executive Committee, C. E. Morgan, Hamilton; W. H. Harper, Chatham; T. Long, Port Hope; W. F. Egg, Montreal; J. P. Hanley, Kingston.

Montreal was selected as the place for the annual meeting in 1901.

While the business session was being held, Mrs. Teetzel, wife of the Mayor of Hamilton, Mrs. Vallance & other ladies, took the ladies of the Association & other lady guests for a drive about the city. In the afternoon the members & guests were tendered a trip over

& some additional local guests from Hamilton.

A fraternal telegram having been read from the American Association of Travelling Passenger Agents, assembled at Virginia Beach, the toasts of the Queen & the President of the U.S. were honored. Other toasts were as follows: The General Passenger Departments, responded to by A. A. Heard, F. A. Backus, H. Parry, T. Henry & M. C. Dickson; our Association, responded to by J. H. Flock, Q.C.; Our Guests, responded to by Mayor Teetzel, Adam Brown, Postmaster of Hamilton, & H. Carscallen, M.L.A.; Travelling Passenger Agents & the Ladies. The speeches were interspersed by a number of excellent songs.

While the menu portion of the dinner was in progress, the ladies of the Association & the lady guests were entertained in the hotel parlors by Mrs. Teetzel, who was assisted by Mrs. Fenwick, Mrs. Vallance, Mrs. McArthur & Miss Annie Vallance. After enjoying some music, the ladies adjourned to the galleries & palm rooms overlooking the dining-room & listened to the speeches.

TRIP TO MUSKOKA.

On Oct. 11 at 9 a.m. the majority of the members & guests, accompanied by the ladies, left Hamilton in a special train provided through the courtesy of General Passenger Agent Davis of the G. T. R., the arrangements for its running being made by Superintendent Tiffin, of the Northern division, who, unfortunately, was unable to be present owing to an important engagement up the line. A rapid run was made via Georgetown Junction & Allandale to Muskoka Wharf, which was reached at 1.55 p.m. Here the party was met by A. P. Cockburn, Manager & Secretary of the Muskoka Navigation Co., & at once went on board that Co.'s steamer Medora. Luncheon was served while the steamer proceeded up Lake Muskoka. A short stop was made at Port Carling, where most of the party went on shore, then the steamer was headed up Lake Rosseau & another stop was made at Renshaw's Point, the site of the hotel which the Muskoka Tourist Hotel Co. proposes to erect, where the party disembarked & inspected the site, which is at an elevation of 60 feet above the lake & very prettily situated. The head of Lake Rosseau was reached at 6 p.m. & the party proceeded to the Monteith House, where dinner was partaken of & the night spent. During the evening the party assembled in the public hall, where an impromptu concert was given, during which the following pres-



BRANT HOTEL, BURLINGTON BEACH.

the Hamilton Radial Electric Railway to the Brant House, Burlington Beach.

THE ANNUAL DINNER

Was held at the Royal Hotel in the evening. A local paper says that, "till the last speech was made, the last song sung & the last cheer given, there was not a minute in which things were allowed to run at less than Imperial Limited speed. It was a through trip, fast-service affair, with no side-tracking or long waits for connections."

1st Vice-President Jackson occupied the chair, & 2nd Vice-President McNamara was Vice-Chairman. Nearly all the male members of the Association, whose names are given above, were present, as well as most of the male guests



MUSKOKA WHARF.

entations were made on behalf of the Association:—To A. P. Cockburn, of the Muskoka Navigation Co., a gold-mounted umbrella; to M. C. Dickson, District Passenger Agent of the G.T.R., a fitted travelling bag; to C. E. Morgan & W. J. Grant, of the local reception committee at Hamilton, a gold-headed cane & a gold-mounted umbrella, respectively.

It was intended to make an early start from Rosseau on the morning of Oct. 12, & to go up to the head of Lake Joseph at Port Cockburn, but owing to a heavy fog the departure of the steamer was delayed for a few hours, & the trip had to be cut short. The party disembarked at Port Sandfield, & on their re-embarking the steamer went up Lake Joseph to a little beyond Hammil's Point, where it turned around & headed for Muskoka Wharf. A stop was made at Beaumaris Hotel, Tondern Island, for luncheon, after which short speeches were made by a number of the guests on the hotel lawn.

During the afternoon a number of the party assembled in the dining saloon of the steamer on the invitation of H. P. Heming, Secretary of the Muskoka Tourist Hotel Co., who explained the Co.'s plans. The capital of the Co. is \$250,000, divided into 3,500 preference shares of \$50 & 1,500 ordinary shares of \$50 each, the preference shares being entitled to an accumulative dividend at the rate of 7% a year, & the ordinary shares to an accumulative dividend of 6% a year. The Co. has acquired 131

acres at Renshaw's Point, Lake Rosseau, with a shore line of nearly 3½ miles in extent, & propose to build a 4-story hotel, with about 250 bed rooms; Mr. Heming stated that the G.T.R. has agreed to carry all building material, plant & furniture for the hotel from any of its stations in Canada to Muskoka Wharf free of charge, to advertise the hotel thoroughly throughout Canada & the U.S., to carry the hotel employees at half rates, & to give an absolute guarantee for 10 years that the interest on the total investment, after allowing for renewals of building & furniture, will not be less than 5% a year. He also stated that the Muskoka Navigation Co. has agreed to carry all building material from Muskoka Wharf to the hotel site free, & employees at single fare. A few of those present took stock.

Another stop was made at Port Carling, & Muskoka Wharf was reached at 6.15 p.m., where a special train was at once taken for Toronto, where the party arrived at 10 p.m., & separated after a most enjoyable outing.

The members & guests present desire us to express their hearty appreciation of the courtesy of the G.T.R. management in tendering complimentary special trains between Hamilton & Muskoka wharf, & between Muskoka wharf & Toronto; also to the Muskoka Navigation Co. for the use of the steamer Medora. The Manager & Secretary of the M.N. Co., A. P. Cockburn, has been inti-

mately connected with the Muskoka district for nearly 40 years, & represented it in Parliament for a considerable period. He knows every foot of the lakes, & during this trip went to infinite trouble to point out the various places of special interest, to tell the name of the owner of every summer home passed, & in many other ways to add to the delight of the visit.

A photograph of 1st Vice-President Jackson was received too late to have an engraving made from it for this issue. It will appear next month.

The Train Among the Hills.

Vast, unrevealed, in silence and the night
Brooding, the ancient hills commune with sleep.
Inviolate the solemn valleys keep
Their contemplation. Soon from height to height
Steals a red finger of mysterious light,
And lion-footed through the forests creep
Strange mutterings; till suddenly, with sweep
And shattering thunder of resistless flight
And crash of routed echoes, roars to view,
Down the long mountain gorge, the Night Express.
Freighted with tears, and tears and happiness. . . .
The dread form passes; silence falls anew.
And lo! I have beheld the thronged, blind world,
To goals unseen from God's hand onward hurled.

C. G. D. ROBERTS.



Richmond Locomotive and Machine Works,

RICHMOND, VIRGINIA, U.S.A.

BUILDERS OF

Simple and Compound

LOCOMOTIVES.

Adapted to every variety of service.

MANITOBA

The Government Crop Bulletin issued Dec. 12th, 1899, gives the following statistics for the year:

CROPS.

ACRES.	AVERAGE YIELD.	TOTAL.
Wheat.....1,629,995	17.13 bus.	27,922,230 bus.
Oats.....575,156	38.80 "	22,318,378 "
Barley....182,912	29.4 "	5,379,156 "
Potatoes..19,151	168.5 "	3,226,395 "

STOCK.

Beef Cattle exported during the year	12,000
Stockers exported.....	35,000
Total value dairy products.....	\$470,559 09

10,500 FARM LABORERS

Came from Eastern Canada to assist in the harvest fields of Manitoba in 1899—and the demand was not fully satisfied.

MANITOBA FARMERS ARE PROSPEROUS.

Farmers erected, last year, farm buildings valued at one and one-half million dollars.

MANITOBA LANDS—For sale by the Provincial Government. Over 1,600,000 acres of choice land in all parts of the Province are now offered at from \$2.00 to \$5.00 per acre. Payments extend over eight years. **Special Attention** is directed to 500,000 acres along the line of the Manitoba and Northwestern Railway at \$3.00 and \$3.50 per acre.

FREE HOMESTEADS are still available in many parts of the Province.

For full information, maps, etc., FREE, address J. A. DAVIDSON, Minister of Agriculture and Immigration, Winnipeg, Manitoba. Or _____, Manitoba Emigration Agt., Union Station, Toronto, Ont.

James Hartney

THE FAVORITE ROUTE To New York andPhiladelphia

GRAND TRUNK RAILWAY
in connection with the
LEHIGH VALLEY RAILROAD

Route of the "Black Diamond Express," handsomest train in the world.

Leaving Toronto daily (except Sunday) at 9 a.m., Hamilton 9.55 a.m., arrive New York 10.08 p.m.

Fast Night New York and Philadelphia Express, leaving Toronto 6.15 p.m. daily, arrive New York 9.38 a.m., Philadelphia 8.56 a.m.

Pullman Sleepers from Toronto, Hamilton and London to New York and Buffalo to Philadelphia.

Call on Grand Trunk Ticket Agents for tickets and further information, or address

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Geo. R. Chesbrough,
West'n Passg'r Agt., Buffalo, N.Y.

Chas. S. Lee, A. A. Heard,
Gen'l Passg'r Agt., Asst Gen'l Passg'r Agt.,
New York. New York.

All C.P.R. Agents in

MANITOBA,
ASSINIBOIA,
ALBERTA and
BRITISH COLUMBIA

sell through tickets to the Old Country, cheaper than if passengers bought railway tickets to New York or Montreal, and then re-booked.

They also sell prepaid tickets to passengers coming from the old country, cheaper than the rate obtainable in Europe, and on favorable terms.

Apply to any agent Port Arthur and west, or to

W. P. F. CUMMINGS,

C.P.R. Offices,
WINNIPEG

Relations of Car Service to Traffic.

The Car Service Committee of the Canadian Freight Association recommend the attention of all members of the Association to the following paper by H. S. Smith, Traffic Manager of the Nashville, Chattanooga & St. Louis Ry., which will also be found of importance & interest to other railway officials.

Car service being a feature of transportation, I will assume the liberty of also considering the relation of transportation to traffic. Reference to performance or statistical data is made with respect to southern railways.

The operating department, embracing the mechanical, road and transportation departments, produces the "stock in trade" of a railway, to wit: transportation; we of the traffic department sell it, & are, therefore, responsible for the revenues.

The price of competitive transportation is supposed to be uniform; one line cannot charge more or, as a rule, less than others; therefore, to enable the traffic department of a railway to sell its proportion of competitive transportation, the character of its service must be as desirable as that of competing lines.

The schedules of southern railways are uniformly satisfactory, & the difference in service, warranting preference of shippers, consists of superiority of shipping facilities, particularly sufficient equipment, expeditiously handled at loading & discharging points.

Car service associations or bureaus have been organized to aid in expediting the handling of equipment at such points, & we, of the traffic department, keenly appreciate the benefit resulting therefrom to the interest we represent.

Six months of every year there is a shortage of cars; some lines, & shippers dependent thereon, suffer more severely from this condition than others on account of commanding comparatively less equipment than more fortunate competitors; to such lines & shippers car service is indispensable, & its relations to traffic are direct & of paramount importance.

Formerly freight traffic was of three classes, to wit: time, important, non-important, embracing live stock & perishable; general merchandise; & lumber, lime, brick, sand, stone, pig iron, coal, etc., respectively; non-important freight being moved at company's convenience. Now all is important; equal time in transit is expected & demanded for all classes, therefore, practically same expedition with respect to loading & discharging cars containing all classes of freight can properly be demanded. This the rules of car service associations do not require, resulting during 6 months of each year in adding to the embarrassment of the carriers & many shippers, & directly affecting the traffic. Freight is now regularly transported from 600 to 1,000 miles in 48 hours; therefore, does it not appear unreasonable that the same time should be allowed in which consignees may release a car which, in a majority of instances, can practically be unloaded in from one to six hours?

It is quite common, when cars are scarce, to unload a whole train of "house freight" after 6 p.m. & reload the equipment for forwarding by 6 the next morning; yet car service rules grant the consignee of one or more cars 48 hours in which to unload, & an additional 48 hours to reload same car.

A shipper or consignee who unnecessarily detains a car during the busy season injures other shippers &, indirectly, himself, by aiding to increase the shortage.

The freight equipment of the principal railways of the South aggregates 127,000 cars, valued at \$60,000,000, equivalent to 5.47 cars per mile of road operated. Estimating 5% to be undergoing repairs leaves 220,650 in constant service.

Oct., 1899, to Mar., 1900, inclusive, the

control of this matter of illegitimate detention by one line of the equipment of another.

Permit me to suggest that car service associations be empowered to assume control of & establish rules to govern with respect to maximum delay ("dead time") a line may, without penalty, cause to foreign equipment; charge, as now, for miles run, & in addition a per diem rental for all "dead time" in excess of fixed maximum at terminals, or each point cars are set out of trains for any account whatsoever; collection of said rentals to be under such rules as govern with respect to mileage. I believe the effect would be material reduction in the general delay to equipment, & doubtless prevent, in a great measure, the annual shortage of cars, in which case the benefit of car service to traffic would be marked & direct.

The Southeastern Car Service Association reports show for the period of 4 months, Jan. to April, 1900, inclusive, 206,118 cars subject to car service rules; average detention by railways, 14 hours; by consignees or shippers, 34 hours; aggregate average detention, 48 hours. Had the Association restricted the aggregate average detention to 36 hours the effect would have been equivalent to placing in service 429 more cars each day, or an aggregate of over 50,000 during the 4 months. This would have resulted in the supply of equipment available equalling the traffic offering, demonstrating possibilities for improved results open to car service associations. It is appalling to contemplate the result had not car service restrictions been applied. For instance, had the aggregate detention to the 206,118 cars been one-fourth longer than 48 hours the effect would have been equivalent to taking over 50,000 cars from the service.

The net earnings during this period were \$12,306.91, equivalent to 5.9-10 of 1c. per car reported, a most insignificant penalty if distributed pro rata, clearly demonstrating that car service is not maintained for purpose of extorting car rental from patrons, also indicating that "delay time" now allowed by the rules might be reduced with benefit to carriers & relief to the large majority of patrons, & without special hardship to the minority who, under existing rules, are paying demurrage.

Our car service associations have determined that equity requires a consignee to be allowed 48 hours in which to release cars loaded with certain commodities, all conditions of weather, etc., being favorable to said consignee, & that for each 24 hours or fraction thereof cars are detained beyond this 48 hour limit, the penalty of \$1 shall be assessed. Granting that the rules with respect to the first 72 hours may be equitable to all interests, I am disposed to contend that the penalty should be increased for the second 24 hours' detention, &, likewise, further increased for each succeeding day's detention; & that where practicable to release equipment, by storing contents, a maximum time for holding freight in cars be established, thereby fixing maximum demurrage that will be permitted to accrue.



C. M. HAYS,

General Manager of the Grand Trunk Ry. System & President-elect of the Southern Pacific Co.

daily shortage averaged 9,720 cars; during a part of that period the actual shortage was much greater than this average; thousands of patrons were waiting for cars. In the meantime over 63% of this large amount of equipment was standing on side-tracks, & less than 37% was rolling. This data represents the average condition, which was not uniform with respect to the several lines. Some lines, with ample equipment to accommodate the traffic they controlled, suffered severely, and their patrons equally as much, owing to failure of connecting lines to return their equipment promptly, thereby affecting traffic & revenues.

The benefit derived by the traffic department from car service would be amplified by the expansion of car service association jurisdiction, which would give said association

Car service prevents blocked yards, minimizing expense of operating terminals, improves the service rendered patrons, restricts discrimination between shippers maintaining expensive & permanent facilities & those who would make warehouses out of rolling stock, is without doubt directly beneficial to a large majority of shippers, & with possibly the exception of fast schedules regularly operated, is to traffic the most important feature of transportation. Therefore, I submit that traffic organizations should, in every consistent manner, co-operate with & sustain car service associations, discountenancing actions of traffic agents which contemplate aiding or encouraging shippers to evade car service rules, or in any manner embarrassing managers of car service bureaus.

To conclude, permit me to suggest that it is not enough that you gentlemen of the service have done well, but predicated on your work of the past, I am persuaded that you will continue to progress & to increase the efficiency & importance of your branch of the service.

General Baggage Agents' Association.

J. E. Quick, of Toronto, Secretary of the American Association of General Baggage Agents, has issued the following circular:—

At Charlevoix meeting of the Association, July, 1899, the following resolution was adopted:—"Resolved, That it is the sense of this Association that all junction points be shown on all foreign checks." The Secretary desires to call the attention of all lines to this

resolution, with the request that all transportation companies, whether members of this Association or not, issuing through checks kindly comply with it. It is a very important matter to larger lines, having more than one junction point with any one line, that the full routing in accordance with the reading of tickets presented & showing junction points, be shown on checks. For example as to how this will apply: Should the G.T.R. System receive at Chicago from western connecting lines, baggage checked to Ottawa, Ont., & routed simply via G.T.R. & C.P.R., train baggageman would be at a loss to know at what junction point with the C.P.R. he was to deliver baggage, as the G.T.R. connects with the C.P.R. at London, Hamilton, Toronto, Brockville & Prescott, through either of which gateways passengers & baggage could reach Ottawa, but should passengers & baggage be sent via different routes, it would make a difference in the time of arrival. This same state of affairs exists with other lines, thus the importance of showing junction points of all interline checks.

The London & Port Stanley Ry., which connects those places, is 23.75 miles long, & is owned by the city of London. It was leased to the Lake Erie & Detroit River Ry. Co. for 20 years from Jan. 1, 1894, so that the lease has 13 years to run from Jan. 1 next. The L. E. & D.R.R. pays \$10,000 a year rental, interest on the bridges which were built by the city of London over the ravines near St. Thomas amounting to about \$2,500, & 10% on

gross earnings over \$80,000 a year. Last year was the first when there was any percentage payable on gross earnings, & it amounted to \$225. The L.E. & D.R.R. wishes to get the lease extended in order to enable it to consolidate its bonded indebtedness & to issue bonds for 30 years. It therefore recently proposed to the city of London to have the lease extended for a further 20 years, & offered what it considered a fair increase in the rental for what it would get in return. This, however, was not accepted, & the city's figures are in the Co.'s estimation altogether too high. It is considered probable that the Co. & the city will be able to compromise the matter on some equitable basis, & that a conference for this purpose will be held in the near future.

A. B. Stickney, formerly General Superintendent of the C.P.R. at Winnipeg, & now President of the Chicago Great Western Ry., has been trying a co-operative experiment among the employees of the latter road, which has, according to his own statement, proved a failure. He offered them a chance to become money-making stockholders in the corporation, but with comparatively few exceptions the offer was silently declined. The few that bought stock soon wearied of saving their money, & whenever the stock mounted a peg or two they would sell out & go to spending their wages as of old. They could not stand prosperity—they tired of economy; & so the plan, originated so wisely & so generously for their benefit, failed of its purpose & became inoperative.

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THOS. C. IRVING,
Gen. Man. Western Canada, Toronto.
JOHN A. FULTON,
Gen. Man. Eastern Canada, Montreal.

The Victoria Jubilee Bridge.

Back in the fifties, Montreal could not boast of a better connection with the railway to the south than by the primitive mode of a ferry across the St. Lawrence River. The terminus of the G.T.R., then called the St. Lawrence & Atlantic R.R., running from Portland, Me., was Longueuil, at which place the Co.'s steamers were in readiness to ferry the passengers to Montreal, the most important city of all the British possessions in America, & one which at that time warranted the expectation of its becoming an immense metropolis. The population of Montreal was between 60,000 & 70,000, more than half of whom were of French extraction.

Freight was transported in barges & during the winter sleighs were resorted to as conveyances for passengers & merchandise. Twice a year there was a stoppage of traffic from one to three weeks during the fall & spring, when the mighty St. Lawrence was impassable. On one occasion a number of passengers were being carried across the ice-bridge in a sleigh, driven by one of the G.T.R. teamsters, when a casualty occurred which proved fatal to one of the number, the others narrowly escaping. When nearing the middle of the stream the whole field of ice, many miles in extent, began to move, but fortunately stopped after going a short dis-

taking the trowel & assisting in preparing the mortar bed for the first stone in the first pier of the great undertaking.

On Nov. 24, 1859, Vice-President Blackwell, Hon. G. E. Cartier, Attorney-General; J. Hodges, A. M. Ross, C.E.; W. Shanley, Major Campbell, Messrs. Gzowski, Macpherson, Forsyth, Captain Rhodes & others, were the first to cross the Victoria Bridge. Mr. Blackwell was on his way to England to attend the Grand Trunk meeting, where he was able to report himself as coming "via Victoria Bridge."

On Aug. 25, 1860, the bridge was officially inaugurated, & the last rivet driven by H.R.H. the young Prince of Wales, on which occasion a grand banquet was held near the bridge, & addresses were given by the Prince, the Duke of Newcastle, Mr. Blackwell, A. M. Ross, C.E., Mr. Hodges & others.

To commemorate this event, Mr. Blackwell had a medal prepared by J. S. Wyon, Chief Engraver of Her Majesty's seals, a gold one



ST. LAWRENCE & ATLANTIC R.R.
LONGUEUIL, STATION—1855.

going east may have observed on his left a gigantic boulder placed upon cut stonemason work, surrounded by a picket fence. This boulder was dug up in the vicinity of the bridge while the latter was under construction, & was placed where it now stands by the workmen employed on the construction, in commemoration of the immigrants who died from ship fever during the years 1847-8. The boulder bears the following inscription:—"To preserve from desecration the remains of 6,000 immigrants, who died of ship fever, A.D. 1847-8. This stone is erected by the workmen of Peto, Brassey & Betts, employed in the construction of the Victoria Bridge, A.D. 1859."

At the time of the completion of the Victoria Tubular Bridge in 1860 it was considered the eighth wonder of the world, & was the admiration of not only the promoters & the G.T.R. Co., but of all Canadians & others who looked upon it. Through increase in traffic, & with the onward march of time & improvement, the old bridge had become inefficient to meet the demands of the G.T.R. System, & the management concluded it must be replaced with a structure which would meet all needs. Accordingly a new open work steel bridge, with double tracks, carriage ways, & foot walks for pedestrians, now rests on the piers which held the old Victoria Bridge for so many years.

On December 13, 1898, the second track across the new Victoria Jubilee Bridge over the St. Lawrence River at Montreal was completed, & the bridge opened for traffic with a double track, the first train to pass over it being the St. John's local, with passenger engine No. 265, Conductor Lavigne & Engineer Day. While apparently of small moment in itself, this fact marked an interesting event



SOUVENIR MEDAL, OPENING OF VICTORIA TUBULAR BRIDGE.

tance, & all escaped in safety, except one man who died from exhaustion & fright.

Thus, it may be imagined by those living in the present period that great difficulties & dangers were experienced by travellers & from Montreal in the old days, before the G.T.R. erected that wonder of engineering skill, the Victoria Tubular Bridge, which stood the test of a heavy traffic for nearly 40 years.

It is probable there never was an undertaking so beset with difficulties as the building of the Victoria Tubular Bridge at Montreal. The contractors had to contend not only with a rapid stream two miles wide but with shoves of ice from 3 to 7 ft. in thickness, & from 15 to 20 square miles in extent.

The engineers of the Victoria Tubular Bridge were Robert Stephenson & Alex. M. Ross, C.E. Mr. Ross, who had been connected with many large railways & public works in Europe, came to Canada in 1852, & after conferring with prominent men in this country, & the management of the G.T.R., with a view to bridging the St. Lawrence, returned to England in the fall, after suggesting a tubular bridge to connect the north with the south shore.

The first stone for the first pier of the old bridge was laid July 22, 1854, by Sir Cusack Roney, along with Vice-President Holmes, J. Hodges, A. M. Ross, C.E., & other gentlemen, who were also joined by Lady Roney, Mrs. Hodges, Mrs. Maitland, & others, each

of which was presented to the Prince, & a bronze one to each of the officers of the G.T.R. It bears a fine impression in relief of the Prince as he then appeared, with the Prince's feathers on the reverse side, & the words, "Welcome, Albert Edward, Prince of Wales, visited Canada & Inaugurated the Victoria Bridge, 1860."

The following particulars respecting the old Victoria Tubular Bridge may be interesting:

Length of ironwork.....	6,592 ft.
Total length.....	9,144 ft.
Number of piers.....	24
Number of iron tubes.....	25
Width of centre span.....	330 ft.
Width of side spans.....	242 ft.
Thickness of centre piers at summer water level.....	28 ft.
Thickness of side piers at summer water level.....	18 ft.
Material of piers.....	Limestone
Quantity of masonry (piers and abutments).....	100,000 cubic yards
Total weight of masonry.....	223,000 tons
Height of tubes.....	18½ to 22 ft.
Width of tubes.....	16 ft.
Total weight of tubes.....	9,044 tons
Height from water.....	60 ft.
Grade of tubes to centre.....	1 in 130
Cost of bridge.....	\$7,000,000
Engineers:	A. M. Ross & Robert Stephenson.
Builders:	Peto, Brassey & Betts, under the superintendency of J. Hodges.

The traveller on leaving the Montreal side of the bridge



H. R. H. THE PRINCE OF WALES AND SUITE PRESENT AT
OPENING OF VICTORIA TUBULAR BRIDGE, 1860.

in the history of the G.T.R. System, as well as in the history of the development of the commerce of both Canada & the city of Montreal.

The Chief Engineer of the new bridge was Jos. Hobson, Chief Engineer of the G.T.R. System. The work was commenced in Oct. 1897, by the erection of the first span on the west end - the structure being built completely around the tube of the old bridge, the latter being cleverly utilized as a roadway on which a temporary steel span was moved out to the first pier, & the new structure then erected outside the temporary span. The progress of the work was delayed for two months during the winter of 1897-8, owing to very severe weather, & the actual time of construction only extended over about 8 months; during that time the enormous traffic of the Grand Trunk was delayed but very little, practically nothing to speak of, the longest time on any one occasion that the line was closed to traffic being about 2 hours, & the total length of time closed during construction being about 20 hours. This is a very remarkable result, when the following facts were taken into consideration:

While the old bridge, entire, weighed 9,044 tons, the new bridge weighs 22,000 tons. The total length of bridge is 6,592 ft; number of piers, 24; number of spans, 25; length of central span, 330 ft; length of side spans, 242 ft. While the width of the old bridge was 16 ft., the width of the new bridge is 66 ft. 8 ins.; the height of the old bridge superstructure was 18 ft.; the height of that of the new bridge over all is from 40 to 60 ft.

The total cost of the new bridge, which provides double tracks for railroad trains, & driveways for vehicles on each side, was about

\$2,000,000, the contract price of the old Victoria Bridge was \$7,000,000.

The superstructure of the bridge, exclusive of its own weight, in which are included floors, railway tracks, guard rails, etc., is designed to carry the undermentioned moving loads: (1) trains running in both directions, consisting of 2 consolidation engines and tenders, coupled, of an average weight of 5,200 lbs per ft of their length, followed by a car load of 4,000 lbs per ft; (2) a moving load on each carriageway of 1,000 lbs per ft. There is no limit prescribed for the speed of either railway trains, of electric street cars, or of ordinary carriages.

The new bridge ranks, from an engineering standpoint, with the foremost structures of the age, as the bridge which it replaced ranked the foremost as a monument to the skill of the engineers and bridge-builders of the period in which it was built.

The opening of the double track on the new bridge marked an era in the handling of traffic over the G.T.R. System, for whereas the old bridge could accommodate a maximum of but 100 trains a day, as they were required to travel at a low rate of speed, & one train could not follow another until the preceding one was out, thus losing a considerable amount of valuable time during a day, the present bridge has almost an unlimited capacity in this respect, as trains can be moved swiftly, & follow each other in rapid succession, owing to the establishment of a modern electric block system, which will permit 2 or 3 trains on the bridge in each direction at the same time. This will enable the G.T.R. to handle with facility the large & constantly increasing freight business, which has heretofore been more or less hampered, owing to the limited

capacity of the old bridge, as well as handling in a proper manner the large passenger business which constantly comes to & through Montreal, & with increased volume during the summer tourist season.

The view from the train while crossing the Victoria Jubilee Bridge is one of much grandeur, & if seen while approaching Montreal from the south shore, cannot but arrest the artistic sense of the beholder. With the St. Lawrence river sweeping under this massive structure, with hundreds of steamboats, sailing vessels, steam tugs & crafts of every description, scurrying hither & thither on its waters opposite the harbor, & the City of Montreal, lying in its beautiful location at the base of Mount Royal as a background, forms one of those beautiful pictures which delight the eye of the artist & awakens the admiration of all. The massive stone warehouses that line the harbor for miles, the extensive manufactories, from whose tall chimneys belch forth volumes of smoke, and which can be seen on the shores of the river as far as the eye can reach, tend to show that Montreal is the commercial metropolis of Canada. While speaking of Montreal, it may be said that when the old Victoria Tubular Bridge was completed in 1860, the population of that progressive city was, as already stated, between 60,000 & 70,000 & to-day the population is given as more than 300,000.

A synopsis of the dimensions & interesting features of the new bridge is appended:—

Length of steel work.....	6,592 ft.
Length (including approaches).....	9,144 ft.
Number of piers.....	24
Number of steel truss spans.....	25
Length of centre span.....	330 ft. in the clear
Length of side spans.....	242 to 247 ft. in the clear
Thickness of centre piers at summer water level.....	28 ft.
Thickness of side piers at summer water level.....	18 ft.

C. P. R. LANDS.

The Canadian Pacific Railway lands consist of the odd-numbered sections along the Main Line and Branches, and in Northern Alberta and the Lake Dauphin District. The Railway Lands are for sale at the various agencies of the company in Manitoba and the North-West Territories at the following prices:

Lands in the Province of Manitoba average \$3 to \$6 an acre.

Lands in Assiniboia, east of the 3rd meridian, average \$3 to \$4 an acre.

Lands west of the 3rd meridian, including the Calgary District, generally \$3 per acre.

Lands in Northern Alberta and the Lake Dauphin District, \$3 per acre.

TERMS OF PAYMENT.

The aggregate amount of purchase money and interest is divided into ten instalments, as shown in the table below; the first to be paid at the time of purchase, the second two years from the date of purchase, the third in three years, and so on.

Interest on the outstanding purchase money is payable annually, except in case of an actual settler who works up at least one-sixteenth of the land within that time. No rebate of interest is allowed on hay or grazing lands.

The following table shows the amount of the annual instalments on a quarter section of 160 acres at different prices and the new conditions:

160 acres at \$3.00 per acre, 1st instalment \$71.90, and nine equal instalments of \$60.
160 acres at \$3.50 per acre, 1st instalment \$83.90, and nine equal instalments of \$70.
160 acres at \$4.00 per acre, 1st instalment \$95.85, and nine equal instalments of \$80.
160 acres at \$4.50 per acre, 1st instalment \$107.85, and nine equal instalments of \$90.
160 acres at \$5.00 per acre, 1st instalment \$119.85, and nine equal instalments of \$100.
160 acres at \$5.50 per acre, 1st instalment \$131.80, and nine equal instalments of \$110.
160 acres at \$6.00 per acre, 1st instalment \$143.80, and nine equal instalments of \$120.

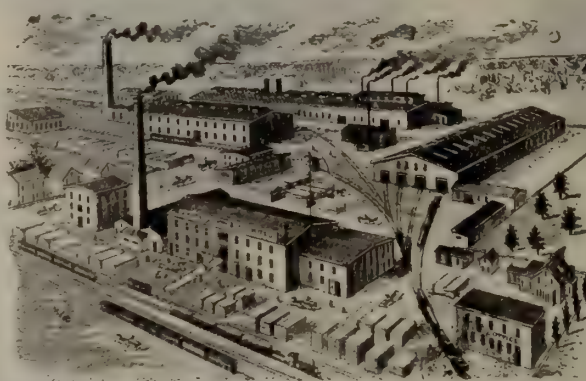
DISCOUNT FOR CASH. If land is paid for in full at time of purchase, a reduction from price will be allowed equal to ten per cent. of the amount paid in excess of the usual cash instalment.

Purchasers paying any instalment, or more, one full year before the date of maturity, will be allowed a discount on the amount of the instalment or instalments so paid at the rate of six per cent. per annum.

Interest at six per cent. will be charged on overdue instalments.

Write for maps and full particulars.

L. A. HAMILTON, Land Commissioner,
F. T. CRIFFIN, Asst. Land Commissioner,
WINNIPEG.



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A partial list of elevators which have been designed and constructed by us and under our supervision.

Burlington Elevator, St. Louis, Mo.....	Capacity.....	1,300,000 Bushels
Grand Trunk Elevator, Portland, Me.....	“.....	1,000,000 “
Export Elevator, Buffalo, N.Y.....	“.....	1,000,000 “
J. R. Booth Elevator, Depot Harbor, Ontario.....	“.....	1,000,000 “
Cleveland Elevator Company's Elevator, Cleveland, O.....	“.....	500,000 “
Erie R. R. Transfer & Clipping House, Chicago, Ill.....	“.....	100 cars in 10 hrs.
Manchester Ship Canal Co.'s Elevator, Manchester, Eng.....	“.....	1,600,000 “
Burlington Elevator Co., Peoria, Ill.....	“.....	500,000 “
Canada Atlantic Railway Elevator, Coteau Landing, Que.....	“.....	500,000 “
Northern Grain Co., Manitowoc, Wis.....	“.....	1,350,000 “
Union Elevator, East St. Louis, Ill.....	“.....	1,100,000 “
Montreal Warehousing Co.'s Belt Conveyor System.....	“.....	“

We make a specialty of furnishing **PLANS AND SPECIFICATIONS.**



Material of piers.....	Limestone
Quantity of masonry (piers & abutments).....	100,000 cubic yards
Height of ordinary spans (centre to centre of chords).....	40 ft.
Height of centre span (centre to centre of chords).....	60 ft.
Width between main trusses (centre to centre).....	31 ft. 2 ins.
Extreme width of bridge, including roadways.....	66 ft. 8 ins.
Height from water at centre to underside of bridge.....	60 ft.
Grade of trusses to centre.....	1 in 130
Total weight of superstructure.....	44,000,000 lbs.
Cost of bridge (new work).....	\$2,000,000.

RAILWAY FINANCE, MEETINGS. &c.

Baie des Chaleurs.—The annual general meeting which was called for Montreal recently was not held, Archibald Campbell, a creditor of the company, having secured a writ of injunction to prevent it. Mr. Campbell says: "What I object to is the proposed gratuitously saddling of the Baie des Chaleurs section of the road with a claim of \$80,000, said by Mr. Galindez to have been by his firm advanced to the Atlantic & Lake Superior section, being about 20 miles of the far-off end, & the voting away as security for that claim Baie des Chaleurs Ry. 1st mortgage bonds for some \$900,000 placed specially some years ago, partly with the Federal Government & partly with the Provincial Government, as security for the completion of a hundred miles of the road to Paspebiac. It is stated & admitted, I believe, that the amount of subsidies voted by the Government is quite sufficient to finish the road, & that the Government is willing to sign a contract to that end on being satisfied the money will be judiciously applied for the purpose intended. That being accomplished, the bonds will thereby be released from the Governments & should be cancelled, not as proposed, handed over to create preferred liability to a preferred creditor without value, to the great loss & injury of other creditors."

Brockville, Westport, & Sault Ste. Marie.—The adjourned annual meeting has been further adjourned from time to time, owing to Receiver C. J. Mooney being ill & unable to present his report.

Calgary & Edmonton.—Net earnings for June, \$11,287.70, against \$12,424.66 in June, 1899. Net earnings for July, \$6,229.66, against \$6,605.26 in July, 1899. Net earnings for Aug., \$15,285.82, against net loss of \$8,596.49, in Aug., 1899.

Canada Atlantic.—At the annual meeting held recently the following directors were elected:—C. J. Booth, C. McLachlin, J. F. Booth, W. Anderson, N. McIntosh, J. A. Seybold, G. W. Mitchell.

Central Ontario.—S. J. Ritchie, of Akron, Ohio, is suing S. Burke, of Cleveland, President of the Central Ontario Ry., to recover among other securities 225 \$1,000 bonds of the Co., which he alleges he gave Burke as collateral. Ritchie is also suing C. W. Bingham, administrator of the estate of H. B. Payne, to recover 500 preferred shares, 1,200 common shares, & 653 1st mortgage bonds of the Co., which he also alleges were handed over as collateral. (July, 1899, pg. 201.)

Central Vermont.—At a meeting of the shareholders of the Montreal & Province Ry. at Montreal, Sep. 12, the directorate was authorized to issue \$200,000 of bonds to be secured by a mortgage deed on the property, assets & revenue, the bonds being guaranteed

by the Central Vermont Ry. Co. The M. & P. line extends from St. Lambert to the International Boundary, 3 miles south of Freleighburg, Que., & will become a part of the C. V. line.

Dominion Atlantic net earnings, Jan. 1 to Aug. 31, \$519,489, against \$449,290 for corresponding period.

English Stocks.—The London Statist says it regrets it cannot recommend purchases of English railway securities, even at their present low level of prices, unless buyers are prepared to hold for two or three years. The Midland declared 234% for the year, with £21,850 carried forward, against 34%, with £20,993 forward a year ago. The Northeastern declared 534% against 6 last year. The Great Northern will pay full dividends with £10,175 over, against £47,163 last year. The Lancashire & Yorkshire paid 4½%, against 5 last year. The Chatham Co. declared nothing on its 2nd preference stock, which paid 4½% last year.

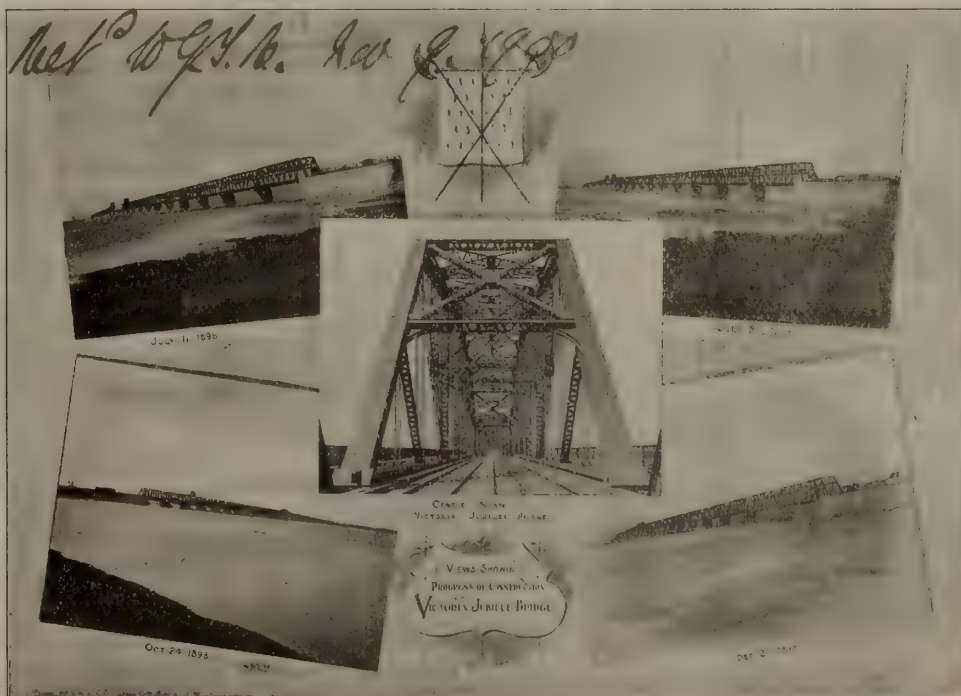
Great Northern of Canada.—Notice is given that an agreement for the sale of the property, &c., of the Lower Laurentian Ry. Co. to the Great Northern Ry. Co. of Canada has been assented to by the shareholders of both companies, & that a draft deed of conveyance has been approved by the shareholders & directors of both companies; & that on Dec. 10 application will be made by both companies jointly to the Governor-General in Council for his approval thereof.

Great Northern, U. S. A.—The report for the year ended June 30 shows that, after paying dividends amounting to 7% on the capital, & transferring \$1,200,000 to improvements and renewals, & \$600,000 to the construction of the Cascade tunnel, there is a balance of \$2,684,240 to be carried forward.

The gross earnings for Sept. were \$2,876,000, or \$237,000 less than for the corresponding period, making for the 3 months to Sept. 30 \$7,553,402, or \$124,412 less.

The Co. announces the usual quarterly dividend at the rate of 7% per annum on the preferred stock, payable November 1.

Great Northwest Central.—A case of considerable interest to railway men throughout Canada was recently decided by the Chief Justice of Manitoba. It arose out of the construction of the G. N. W. C. Ry. in Manitoba



& the N.W. T. The suit was brought by a contractor named Preston against his solicitor, F. S. Nugent, to recover his share of \$40,000, for which sum several claims were settled at by Nugent. The latter paid \$9,000 to Preston & his partner, but maintained he was entitled to retain the balance under a written agreement for costs & disbursements. Nugent also maintained that for some years he had devoted almost his whole time & attention to the interests of the plaintiff in connection with multitudinous litigation in almost all the courts in Ontario, Manitoba, the N.W. T. & before the Privy Council of England. Preston offered to pay Nugent's taxed costs, but contended that the amount charged was altogether too high, & swore that the agreement referred to had been obtained from him & his partner by Nugent under duress. The judgment voids this agreement, & orders costs to be taxed by the master, who is to take the accounts as between the parties. An application will now be made to compel Nugent to pay the balance of the \$40,000 into court until the litigation in connection with the building of the railway, which has now extended over many years, be finally disposed of.

Halifax & Yarmouth.—In reference to the rumor that this line, now under construction, is likely to be amalgamated with the Dominion Atlantic, the Chief Engineer & Superintendent of the H. & Y. informs us that so far as that Co. is concerned the matter has not been talked of or considered in any way by any of the directors or stockholders.

At the recent annual meeting the following were re-elected:—President, T. Robertson; Vice-President, W. B. Ross; other directors, J. Burritt, W. Lovitt, G. A. Cox, A. M. Hatfield.

Kootenay Ry. & Navigation Co.—The Great Northern Railway Company, U.S.A., has acquired the majority of the shares of the

K.R. & N. Co., & has agreed to guarantee the payment of both principal & interest of the existing debenture stock of the latter company, & of such additional debenture stock as may be issued, subject to the consent of the G.N. Co.

Lord Revelstoke & T. Baring, of London, Eng., have been appointed by the holders of K.R. & N. Co.'s debenture stock as trustees in place of the Stock Conversion & Investment Trust.

The English offices of the K.R. & N. Co. have been removed to 2 Copthall Buildings, London, E.C.

Masawippi Valley.—At the annual meeting in Montreal recently the following were elected:—President, W. White; Vice-President, J. G. Foster; Treasurer, J. H. Williams; other directors, O. Edwards, A. Speare, A. Barnes, C. H. Kathan, C. W. Case, J. W. Dunklee; Secretary, S. Stevens. This line is operated by the Boston & Maine.

Michigan Legislation.—A special session of the Michigan Legislature adjourned Oct. 12, after sitting three days. The Legislature passed both of the measures which were submitted by the Governor; a joint resolution to submit to the people at the election next month a constitutional amendment authorizing the taxation of railways at the actual value of the property, instead of basing the taxes on the earnings, & a bill repealing the special charters of the Michigan Central, the Lake Shore & Michigan Southern, & the Detroit, Grand Haven & Milwaukee railroads. These repeals do not take effect until the end of next year, & meantime the roads are given leave to bring suits for damages.

Montreal & Atlantic.—At a general meeting of shareholders in Montreal recently the Royal Trust Co. was appointed trustee, to whom the mortgage will be made for securing the bonds of the Co.

New Brunswick.—At the recent annual meeting at St. John, N.B., the following were elected:—President, R. Meighen, Montreal; Vice-President, J. K. Todd, New York; Solicitor, H. H. McLean, St. John; other directors, Lord Strathcona & Mount Royal, J. Turnbull, G. Hardisty, J. S. Kennedy, S. Thorne, D. W. James, New York; E. R. Burpee, Bangor, Me.; J. McMillan, St. John, N.B.; Secretary-Treasurer, A. Seely, St. John; Land Agent, W. T. Whitehead, Fredericton. The working results for the 12 months ended June 30 enabled the directors to announce a dividend of \$1.80 per share against \$1.75 for the year ended June 30, 1899.

New Brunswick & Prince Edward Island.—At the annual meeting held recently at Sackville, N.B., the directors were re-elected. This line has been in operation some 18 years, & has done a large lumber transportation business, but no dividend has been declared.

THE QUEEN CITY OIL CO. LIMITED
SAML. ROGERS PRES. TORONTO

**SPECIAL
STEAM - BOAT
LUBRICATING**



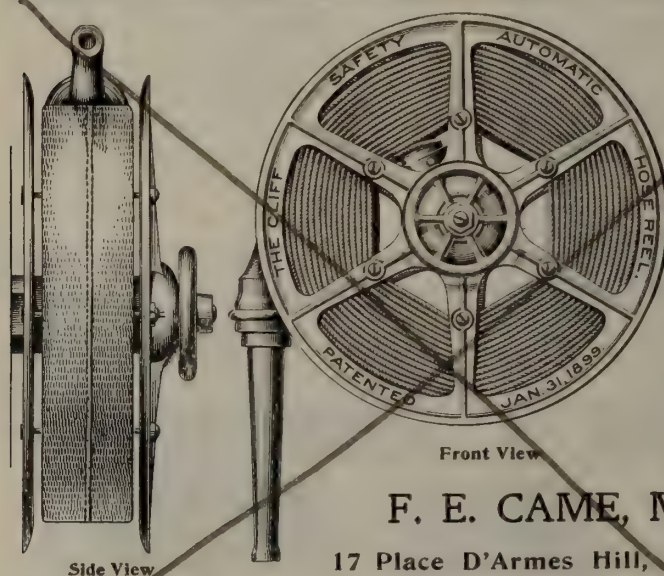
Greases, &c.,
Raw Linseed,
Boiled Linseed,
Spirits Turpentine,
"Sarnia" Benzine,
"Sarnia" Gasoline,
Castor Oil,
Cotton Waste,
Lubricators, &c., &c.

**THE FIRSTBROOK BOX CO.,
LIMITED.**

**CROSS ARMS, TOP PINS,
AND SIDE BLOCKS,
TORONTO.**

LELAND HOUSE, Winnipeg Man., W.
D. Douglas, Proprietor. Rooms en suite with baths and all modern conveniences. Rates \$2 to \$4 a day. Special rates for families and large parties, according to accommodation and length of time. Though moderate in price the Leland is first-class in every respect. It is especially adapted to please the commercial trade. It is in the centre of the wholesale and retail district. It is in direct communication with all parts of the city by car lines. It is supplied with the purest spring water from flowing well on the premises.

TORONTO ENGRAVING CO.
DESIGNERS, ENGRAVERS,
ELECTROTYPERS.
92 BAY ST.



**THE CLIFF
SAFETY
AUTOMATIC
REEL.**

Unwinding Hose
Opens Valve.
Standard of U.S.
Government.
Send for Particulars.

F. E. CAME, Manufacturer,

17 Place D'Armes Hill, - - Montreal, P.Q.

**THE BRADLEY COMPANY,
Hamilton, Ontario.**

White Oak Car Timber and
Railroad Ties, Pine Decking
and Bridge Timber cut
to order.

3x3-30 ft. B.C. Pine Decking and Cross
Arms in Stock.

White Oak Piling furnished promptly.

**THE MAIL JOB PRINTING COMPANY
LIMITED**

**Railway
AND
Steamboat
Printers**

110 BAY STREET, TORONTO
RICHARD SOUTHAM, MANAGER

I cut on this page ref to G. F. Peabody, Jan. 9, 1900

New Brunswick Railway Claims.—Judge Barker, of New Brunswick, Judge Langelier, of Quebec, & D. Coulson, of Toronto, as arbitrators, recently heard the claim of New Brunswick against the Dominion. The amount of bonuses paid by the Province to the Eastern Extension Ry. was \$400,000. This was paid through the Dominion treasury in 1868 & 1869, & charged against a credit the Province then had. When the line was taken over on Nov. 1, 1869, the Province was credited with only \$202,500, & \$47,500 was paid by the Dominion to the railway, leaving a claim of \$150,000 still due to the Province, according to its contention. This amount was paid by the Dominion in 1884, & the Province now claims interest on it from Nov. 1, 1869. It claims that its annual subsidy from the Dominion would have been \$7,500 more each year if this \$150,000 had been credited it when the railway was taken over. The claim at compound interest, the method by which these accounts have always been kept, amounts to \$351,541, or by simple interest to \$236,968. The contention of the Dominion is that there never was any legal right in the Province to receive the \$150,000, & that the payment in 1884 was made on purely equitable grounds, & was intended to be a full settlement. The arbitrators' decision has not been announced.

the trackage agreement between the Co. & the Chicago, Milwaukee & St. Paul for the use by the latter of the St. Paul & Duluth division from St. Paul to Duluth.

President Mellen, in speaking of the business conditions in the West recently, said that Washington, Idaho & Oregon were exceedingly prosperous, & that it was entirely due to the earnings of the western part of the road that the general showing was so good, as the Western division's surplus overbalanced the deficiency in the eastern part. On the Eastern division the traffic was 250 cars a day less than last year, due to the failure of the crops.

The addition of the St. Paul & Duluth's earnings should make an increase of about \$5,000 a day. If earnings for the next few months showed an average increase of less than this amount, it would have to be assigned to the failure of the Eastern division of the N. P. to keep up its earnings.

Ontario, Belmont & Northern.—The annual meeting was held at Toronto Oct. 1. It is said that R. C. Carter, of Deseronto, was added to the directorate, & that C. A. Masten was re-elected President. The O., B. & N. has 9.6 miles of line from a junction with the Central Ontario Ry. to iron mines in Belmont township. The line is operated by the C. O. R.; in whose reports its earnings, &c., are included.

Ottawa & Gatineau.—At the annual meeting in Montreal Sept. 5 the following were elected directors:—H. G. Beemer, M. S. Lonergan, Hon. J. S. C. Wurtele, S. Finley, E. A. Hoare, W. Hanson & Dr. Duhamel.

The report for the 6 months ended June 30 is said to show an increase of 40% in the gross earnings, & 300% in the net earnings, against the same period a year ago.

Ottawa & New York.—The annual meeting was held in Ottawa Sept. 25. It is said that 765 passengers were carried on the line between Ottawa & Cornwall during the year, & that the amount of freight carried was 30,524 tons.

The gross earnings of the road during the year are said to have totalled \$63,890.04. The expenditure is said to have been about equal to that amount, but the receipts cover all expenses outside of in-



VICTORIA JUBILEE BRIDGE, COMPLETED 1899.

terest. The following were elected directors:—H. W. Gays, Ottawa; G. F. Peabody, G. B. Moffat, C. J. Peabody, A. M. White, jr., A. Nicholas, B. Moffat, S. Trask & H. S. Snow, New York.

Port Arthur, Duluth & Western.—The annual meeting was recently announced to be held in Toronto. We are informed that, technically speaking, this line still exists, but that for all practical purposes it has been wiped out. The bondholders took proceedings & at a sale by the Court the railway & its undertakings & all other assets were sold, & the line now forms part of the Canadian Northern Ry.

Qu'Appelle, Long Lake & Saskatchewan.—Net loss in operating for June \$7,612.60 against \$952.97 in June, 1899. Net loss in July \$4,480.94, against \$3,677.77 in July, 1899. Net loss in Aug. \$1,271.85, against \$5,861.36 in Aug., 1899.

The Dominion Government subsidy for the 6 months ended June 30, together with the net earnings of the Co., to May 31 last, have permitted a distribution of £1 1s. in respect of the interest due Aug. 1. Last year the distribution was £1.

Quebec & Lake St. John.—Receipts Jan. 1 to June 30, \$40,146 more than for corresponding period of 1899.

Quebec Bridge.—At the annual meeting Sept. 6 the following were elected:—President, Hon. S. N. Parent; Vice-Presidents, R. Audette, Hon. R. R. Dobell. Other directors: H. J. Beemer, V. Boswell, J. Break-



PORTAL VICTORIA JUBILEE BRIDGE.

New York & Ottawa.—Judge Lacombe, in the U.S. Circuit Court, has authorized H. W. Gays, receiver, to issue \$585,000 receiver's certificates.

Northern Pacific.—The annual report, recently issued, shows that the improvement of the property was continued on an extensive scale, both from appropriation of earnings & the proceeds of the issue of new capital. Of \$3,000,000 appropriated from the year's earnings for betterments, all but \$672,305 was expended. The largest items of expenditure charged against this fund were \$329,516 for bridge work, \$128,583 for new spurs, \$192,976 for changes of grade & line, \$300,666 for widening embankments, etc., the total for roadway work being \$1,686,114. For new equipment \$641,582 was spent, including the cost of 21 engines, 308 platform cars & miscellaneous equipment. Charges against capital account were \$3,374,047, of which \$724,146 was for real estate, \$1,584,901 for branches & extensions, the chief charge being \$750,437 for the Walmer cut-off; \$270,000 for purchase of securities of Portage & Northwestern Ry., & \$795,000 for additional equipment. Besides the cost of additional equipment provided by charges against capital, & the appropriation of income, referred to above, \$318,380 for new equipment, representing replacement, was charged directly to operating expenses.

The directors of the N.P. have approved



APPROACH TO VICTORIA JUBILEE BRIDGE.

ASSESSMENT SYSTEM



INDEPENDENT ORDER OF FORESTERS.

THE BEST FRATERNAL BENEFIT SOCIETY IN EXISTENCE.

Cost to Join the I.O.F.

(For \$1,000 Mortuary Benefit.)

Initiation fee (minimum).....	\$1 00
Certificate fee.....	1 00
Registration fee.....	1 00
Medical Examination fee.....	1 50
Total minimum cost.....	\$4 50

(For more than \$1,000 Mort. Benefit.)

Cost to take \$2,000 Mort. Benefit, \$6 00	
" " \$3,000 " " 7 00	
" " \$4,000 " " 9 00	
" " \$5,000 " " 10 00	
Sick benefits, when required, cost extra.	

Benefits given by the I.O.F.

- 1.—The Mortuary Benefit of \$500, \$1,000, \$2,000, \$3,000, \$4,000 or \$5,000.
- 2.—A Total and Permanent Disability Benefit of one-half of face value of policy, with exemption from further payment of premiums or Court Dues.
- 3.—An Old Age Benefit consisting of exemption from payment of premiums and Court dues after age 70.
- 4.—An Old Age Disability Benefit of one-tenth of face value of policy payable yearly for ten years, on being declared totally and permanently disabled by infirmities of age after the seventieth birthday.
- 5.—An Old Age Pension payable during disability, which may be taken as a substitute for the Old Age Disability Benefit.
- 6.—Free Medical Attendance by Court Physician where not dispensed with by Court by-law; also trained nurses in certain cases.
- 7.—A Sick Benefit of \$3 to \$5 per week, subject to provisions of the Constitution and Laws of the Order; optional, and when taken cost's extra.
- 8.—A Burial Benefit of \$100 at death of a Pensioner.
- 9.—A Funeral Benefit of \$50 at death of a member enrolled in Sick and Funeral Benefit Department.
- 10.—Social and Fraternal Privileges of the Court Room.

The Members, the Benefits, and Their Assurance

At 31st December Each Year.

Year.	Total Membership.	Benefits Paid.	Total Surplus.	Surplus per Capita.	Death Rate per 1,000.
1881	1,019	\$ 1,300 00	\$ 4,568 55	\$ 4 48	4.50
1882	1,134	12,058 86	2,967 93	2 61	11.00
1883	2,210	9,493 68	10,857 65	4 91	4.73
1884	2,558	13,914 31	23,081 85	9 01	4.23
1885	3,642	26,576 99	29,802 42	8 18	7.76
1886	5,804	28,499 82	53,981 28	9 30	4.85
1887	7,811	59,014 67	81,384 41	10 44	5.78
1888	11,800	89,018 16	117,821 96	9 98	6.43
1889	17,349	116,787 82	188,130 36	10 84	5.85
1890	24,604	181,846 79	283,967 20	11 54	5.18
1891	32,303	261,436 21	408,798 20	12 65	6.40
1892	43,024	344,748 82	580,597 85	13 49	6.25
1893	54,484	392,185 93	858,857 89	15 76	5.47
1894	70,055	511,162 30	1,187,225 11	16 94	5.47
1895	86,521	685,000 18	1,560,733 46	18 03	5.67
1896	102,838	820,941 91	2,015,484 38	19 60	5.56
1897	124,685	992,225 60	2,558,832 78	20 52	5.56
1898	144,000	1,176,125 14	3,186,370 36	22 12	5.67
1899	163,610	1,430,200 33	3,778,543 58	23 09	6.30

For Further Information Respecting this Great Fraternal Benefit Society, Apply to

Oronhyatekha, M.D., S.C.R., Toronto, Ont.

James Marshall, 24 Charing Cross, London, Eng.

John A. McGillivray, Q.C., S.S., Toronto, Ont.

A. E. Stevenson, 6436 Kimbark Ave., Chicago, Ill.

Or Any Officer or Member of the Order.

ey, J. R. Laliberte, G. Lemoine, Hon. J. A. Paquet, H. M. Price, N. Rioux.

Quebec Central.—Earnings for 8 months to Aug. 31, \$116,245.59, against \$119,068.07 for corresponding period of 1899.

Rutland.—Application will be made to the next Vermont Legislature for an amendment to the charter permitting the Co. to buy & operate the Bennington & Rutland, the Rutland-Canadian, the Rutland & Noyan & the Ogdensburg & Lake Champlain R.R. companies, & the Rutland Transit Co. The proposed changes include an increase in the capital stock & the right to take over other connecting roads.

Rutland & Noyan.—The annual meeting was held Sep. 5. Following are the directors for the current year:—President, F. H. Button; Vice-President, H. A. Hodge; Secretary-Treasurer, H. G. Smith; Chief Engineer, J. W. Burke; other director, P. W. Clement.

St. Mary's River.—The annual meeting was held at Lethbridge, Alta., Oct. 1. Following are the officers elected:—President, P. L. Naismith; Secretary-Treasurer, J. E. Lethbridge; other directors: C. A. Magrath, H. McBeth, W. R. Cunningham. All these are officers of the Alberta Ry. & Coal Co., of which the S.M.R.R. Co. is a subsidiary. Other questions before the meeting were the authorizing of the issuing of 1st mortgage bonds of the Co. & the approving of an agreement between the Co. & the A. R. & C. Co. for the regulation & interchange of traffic, & generally in relation to the management & working of both railways.

Shuswap & Okanagan.—Earnings Jan. 1 to June 30, \$15,067, expenses \$8,039, net earnings \$7,028.

Temiscouata.—The interest due Sept. 1, on the 5% 1st mortgage bonds has not been paid. This is not a surprise to those who know the position of the Co. The bonds were guaranteed, as to interest, for 10 years from March, 1890, so that this is the first payment due after the lapse of the guarantee. By this default the bonds become in the same position as the main line bonds, the interest upon which has not been paid since July, 1898.

The Central Vermont in Canada.

An Act passed at the last session of the Dominion Parliament gives the Central Vermont Ry. Co., which is incorporated under the laws of the State of Vermont, all the powers, privileges & rights, as a corporation, necessary for the convenient & proper carrying on of the business & undertakings in Canada mentioned below.

The Co. may purchase the capital stock of, & may purchase, lease & operate the Montreal & Province Line Ry., the Stanstead, Shefford & Chambly Ry., & the Montreal & Vermont Jct. Ry. Co.

The corporations owning these railways may enter into agreements with the C.V.R. Co. for conveying or leasing them to that Co., together with the franchises, works, plant & other property belonging to them, or for an amalgamation with the C.V.R. Co., on such terms & conditions as are agreed upon, & subject to such restrictions as to the directors seem fit: provided that each such agreement has been first approved by two-thirds of the votes at a special general meeting of the shareholders of each of the said corporations called for the purpose of considering it—at which meeting shareholders representing at least two-thirds in value of the stock of each of the said corporations are present or represented by proxy—and that such agreements have also received the sanction of the Governor-in-Council.

The Co. shall have an office at or near Montreal, & service of process or legal documents

may be effected upon any clerk or officer employed therein, or upon the person then in charge thereof.

The Co. & its undertakings shall be subject to The Railway Act, except sections 32 to 89, & to the laws of Canada.

Nothing in this Act contained, or done in pursuance thereof, shall take away or prejudice any claim, demand, right, security, cause of action or complaint which any person has against the Montreal & Province Line Ry. Co., nor shall it relieve such Co. or its properties from the payment or performance of any debt, liability, obligation, contract or duty.

Nothing in this Act contained shall take away, annul or affect any agreement or stipulation made, in relation to railway belonging to the Montreal & Province Line Ry. Co., with any municipality which granted or which was part of a territory granting any bonus, aid or assistance to either of the said lines; but the C.V.R. Co. shall, in the event of such lease, sale or amalgamation, carry out the conditions under which such bonus was granted.

The C.V.R. Co., in purchasing, leasing & operating the Montreal & Province Line Ry. Co., shall assume & be liable for the charges & rights secured to J. Franchère, M.D., & others, of Marieville, by deed of sale passed June 19, 1877, which are mentioned in the deed granted by the Sheriff of Montreal to F. S. Stranahan, in trust, in 1896, by which deed the Sheriff sold & handed over to Stranahan, in trust, the railway belonging now to the Montreal & Province Line Ry. Co.

The Co. may, after acquiring the said roads as herein provided, enter into an agreement to transfer or lease them to the G.T.R. Co. of Canada.

Early Navigation of the St. Lawrence.

Jos. Reynar, of Three Rivers, Que., who has made a study of the very important question of having the St. Lawrence kept open for navigation a couple of weeks later every season, & opened a month earlier every spring, up to the port of Montreal, writes as follows: "Referring to my article in your July number, I have much pleasure in sending you a pamphlet giving detailed descriptions of some strong ice-breaking steamers built for Russia by Sir Wm. Armstrong, Whitworth & Co., of Newcastle-on-Tyne. I hope that many Canadians, of the progressive type, will call at your office & make a study of the question I am placing before the people of Canada, which is of such vital importance to our commerce, & study carefully the results already obtained in many Russian ports.

"I recommend that the Canadian Government should, without any delay, order the construction of a strong ice-breaking steamer, something of the Sampo type, viz., length about 250 ft., breadth about 50 ft., depth about 22 ft. A vessel of these dimensions should not draw over 14 feet, with one week's coal supply on board, & with twin screws & the best engines & boilers in use, should clear the St. Lawrence of ice between Quebec & Montreal early in April every year.

"In my former article I explained how our ice-breaking steamer would be of great service in summer, by having her stationed at Sydney, N.S., ready to start at an hour's notice by orders from Ottawa, to assist any stranded vessel on Anticosti, the coast of Labrador, or elsewhere. We have lost many vessels for want of such a steamer. Last year she would have possibly been able to save the Scotsman, or at least a portion of her cargo. It is about time for the Dominion Government to wake up & take prompt & definite action in the matter. Russia has taken the lead, & we should not be too far behind."

British Columbia Telephones, Limited.

Following is the 2nd annual report presented at the annual meeting at Huddersfield, Eng., Oct. 9:—

On Oct. 1, 1899, the Co. acquired the business of the Victoria & Esquimalt Telephone Co., Limited, & in order to pay the purchase price, issued £10,000 debenture stock; £10,000 preference shares, & £10,000 ordinary shares (£7,500 paid up). The premium obtained on the debenture stock & shares, amounting to £1,088 7s. od., has been credited to the reserve fund.

The new switch-board referred to in the last report has been put in at Vancouver, & is now in successful operation. Very satisfactory progress has been made during the year. There has been a net gain to all the subsidiary companies of 609 subscribers, being an increase of about 30% on last year's figures, & there has been a further increase of 49 in July this year.

Besides the usual expenditure for renewals & repairs, which during the past year has been of an exceptional character, it has been found necessary during the same period to undertake considerable works of construction & additions to plant, involving the expenditure of about £14,500. A portion of this sum will shortly fall due for payment, & it may be found necessary to make a call upon the ordinary shares to provide for this outlay. In the meantime the directors are glad to be able to report that all the companies' lines are in a high state of efficiency.

The profits for the year (including £425 4s. 3d. brought from last year's account), after deducting the expenses of the English offices, amount to £7,696 10s. 10d., from which the following deductions have to be made: Interest on purchase money of shares in the Victoria Co. to date of payment, less adjustment of exchange £192 14s. 6d.; Interest on debenture stock to June 30, 1900, £1,010 12s. 2d., leaving a balance of £6,493 4s. 2d.

The directors recommend that this be disposed of in the following manner, viz.:

Dividend on preference shares to June 30, 1900 (already paid).....	£1,475 5 0
Interim dividend of 8% per annum (free from tax) to December 31, 1899, on the ordinary shares (already paid).....	951 14 6
Dividend on ordinary shares at 8% per annum (free from tax) to June 30, 1900.....	1,200 0 0
To add to the reserve fund.....	2,000 0 0
To provide for directors' remuneration & to carry forward to next year's account.....	866 4 8
	<hr/> £6,493 4 2

ASSETS, JUNE 30, 1900.

Shares in The Victoria Esquimalt Telephone Co., Ltd., & The New Westminster & Burrard Inlet Telephone Co., Ltd., which include the shares in subsidiary companies.....	£87,250 0 0
Profits from & amounts owing by Subsidiary Companies.....	9,215 4 0
	<hr/> £ 96,465 4 0

CAPITAL AND LIABILITIES, JUNE 30, 1900.

Nominal Capital: £100,000, divided into 3,000 6% preference shares of £10 each and 7,000 ordinary shares of £10 each.	
Issued: 3,000 6% preference shares, fully paid.....	£30,000 0 0
4,000 ordinary shares, £7 10s. od. per share paid.....	30,000 0 0
Debenture stock, bearing interest at 4½%.....	30,000 0 0
Sundry creditors.....	276 14 10
Cash due bank.....	33 17 6
Reserve fund.....	2,088 7 0
Profit & loss account—	
Balance from last year's account.....	£825 4 3
Less voted as directors' remuneration.....	400 0 0
	<hr/> £ 425 4 3
Profit for the year.....	7,271 6 7
	<hr/> 7,696 10 10
Less Interest on purchase money of shares in the Victoria Co., to	

date of payment					
less adjustment					
of exchange....	192	14	6		
Interest on debenture stock.....	1,010	12	2		
Dividends paid, viz.:					
On preference shares to June 30, 1900.....	1,475	5	0		
Interim dividend on ordinary shares.....	951	14	6		
	3,630	6	2		
	4,066	4	8		
	£96,465	4	0		

The directorate of the Co. is composed of E. Gray, F. Priestman & J. Wheatley, in England, & W. Farrell, in Vancouver, B.C. The chief officers in British Columbia are R. K. Houlgate, Comptroller, & H. W. Kent, Construction Superintendent & Manager, both with headquarters at Vancouver.

STEEL

LaBelle Steel Co.

Pittsburgh, Pa.

MANUFACTURERS OF

FINE TOOL STEEL

For Railway Purposes

Track Tools,
Punches, Dies,
Drills, Magnets, etc.

And all purposes where requirements are exacting.

Steel Forgings. Case Hardening Steel.

W. G. BLYTH,
Agent for Canada,

31 Melinda St., - Toronto

Sale One Hundred Millions a year.

RIPANS

THE WONDERFUL MEDICINE

They relieve Distress from Dyspepsia, Indigestion and Too Hearty Eating: are a perfect remedy for Dizziness, Nausea, Drowsiness, Bad Taste in the Mouth, Coated Tongue, Pain in the Side, TORPID LIVER.

They regulate the Bowels.
They Cure Sick Headache.
A Single One Gives Relief.

WANTED

A case of bad health that RIPANS will not benefit? RIPANS, 10 for 6 cents, or 12 packets for 48 cents, may be had of all druggists who are willing to sell a low-priced medicine at a moderate profit. The banish pain and prolong life. One gives relief. Accept no substitute.

Note the word RIPANS on the packet.

Send 5 cents to Ripans Chemical Co., No. 10 Spruce St., New York, for 10 samples and 1,000 testimonials.

Back Numbers for Sale.

THE RAILWAY AND SHIPPING WORLD:

March to December, 1898, price... \$1.00

January to December, 1899, "..... 1.25

including postage.

Address

THE RAILWAY AND SHIPPING WORLD,
33 Melinda St., Toronto, Canada.

All Cuts used in the RAILWAY
AND SHIPPING WORLD,
and owned by the Publishers, are

.....For Sale.

Picketing During Strikes.—The High Court of Justice, in England, recently enjoined the General Secretary & the Organizing Secretary of the Amalgamated Society of Railway Servants from watching & besetting the Great Western Ry. stations & approaches, with the view of inducing non-unionists to refrain from taking the places of Taff Vale Ry. strikers.

The wire connecting Manitoulin Island & the Georgian Bay with the C.P.R. Telegraph System on the main line was interrupted in a curious manner recently. During a wild electric storm the horns of a moose became entangled with the wire, & the repairers found him dead. The ground around showed that there had been a furious fight; the wire, however, held him, but two poles were broken.

ENAMELED IRON PLATES

For Doors, etc., in Stations, Steamships, Ferries, Hotels, Offices, etc., carried in Stock for Prompt Delivery.

Any of these Plates can be shipped on the day an order is received.

SMOKING ROOM

Size 23 x 3½ inches. Oblong, fancy ends, white ground, blue letters, lined & tipped:

Agent's Office.	Waiting Room.
Express Office.	General Waiting Room.
Freight Office.	Ladies' Waiting Room.
General Offices.	Men's Waiting Room.
Private Office.	Dining Room.
Ticket Office.	Lunch Room.
Telegraph Office.	Restaurant.
Baggage Room.	Ladies' Toilet.
Smoking Room.	Men's Toilet.
Smoking Prohibited. No Admittance.	
Trespassers Prosecuted.	

NO ADMITTANCE

Size 10 x 2½ inches. Oblong, oval ends, white ground, blue letters, lined & tipped, hollowed:

Bar Room.	Men.
Luggage Room.	Private.
Office.	No Admittance.
Refreshments.	No Road.
Exit.	Boarding House.
Fire Escape.	Private Board.
Lavatory.	Dressmaking.
Ladies.	Fresh to Day.
Women.	Teas Provided.
Gentlemen.	Please Shut the Gate.

Size 14 x 3 inches. Oblong, oval ends, white ground, blue letters, lined and tipped.

No Admittance.

STICK NO BILLS

Size 18 x 3½ inches. Oblong, square ends, white ground, blue letters, lined & tipped.

Furnished Apartments. Stick no Bills.
Please Shut the Door.

PUSH PULL

Oval, size 2 x 3 inches, white ground, blue letters, tipped, hollowed, lettered Push, Pull, as above.

Oblong, square ends, size 3 x 1½ inches, white ground, blue letters, tipped, lettered Push, Pull, as above.

Perpendicular, square ends, size 12 x 3 inches, white ground, blue letters, lined & tipped, lettered perpendicularly, Push, Pull.

Oblong, square ends, size 12 x 3 inches, white ground, blue letters, lined and tipped, lettered horizontally, Push, Pull.

Oblong, fancy ends, size 3 x 1½ inches, white ground, blue letters, lined and tipped, lettered Push, Pull.

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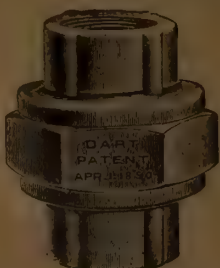
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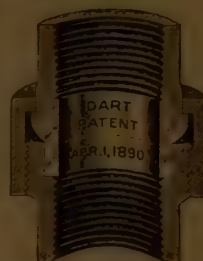
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G.T.R. Semi-Annual Meeting.

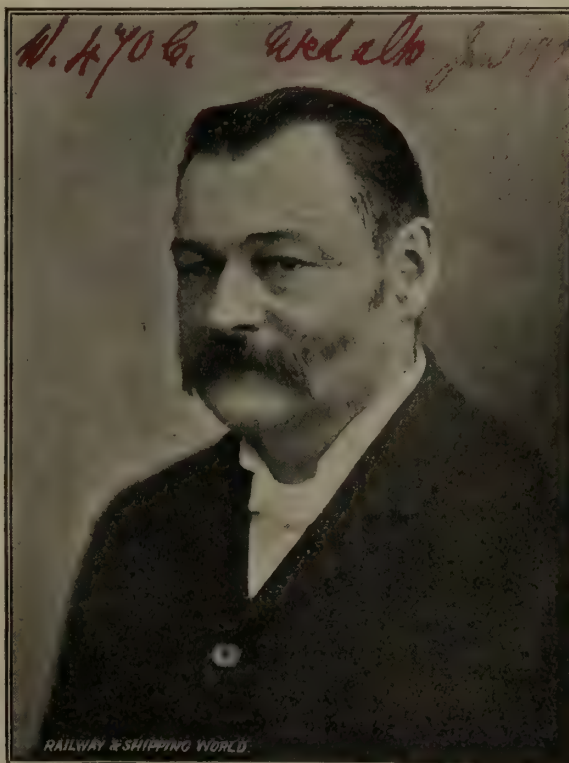
The report, for the $\frac{1}{2}$ year ended June 30, as presented at the annual meeting in London, England, Oct. 9, was published in our last issue. The report having been taken as read, the President, Sir C. Rivers Wilson, said:—In considering the reports & accounts of our Co. for the $\frac{1}{2}$ -year ended June 30 last, I would ask you to bear in mind that we have been working during that period in comparison with heavy receipts & prosperous times in the corresponding $\frac{1}{2}$ -year of 1899. I will ask you also to remember that the conditions under which railways, not only on the other side of the Atlantic, but here also, have been working during the last 6 months have been of a peculiarly difficult & onerous character, imposing an enormous strain upon the resources of the management. That we have been able, notwithstanding, to add largely to our gross income, & even to improve upon our net receipts, I think, is a subject of congratulation to our shareholders. Well, beginning with the question of addition to capital, which the directors have always shown themselves most anxious to restrict within the narrowest limits, we have added £143,800 net to the capital expenditure of the $\frac{1}{2}$ -year. Of that a certain portion is represented by the necessity for renewing the bridges over the 10 miles of double track which have been recently completed. The doubling of the line between Hamilton & Niagara Falls, referred to at the last meeting, is being proceeded with, & several miles of the grading have been completed. We hope that considerable progress will be made in this important work, & that 26 miles of the entire distance of 43 miles will be completed & opened for traffic before the close of this year. It will be very satisfactory if we are able to complete the double tracking on that section in the spring of next year, as it is proposed to hold an important exhibition at Buffalo—the Pan-American Exhibition—which it is expected will result in a large & remunerative traffic to our Co. The outlay for the past $\frac{1}{2}$ -year, on account of additional double track, amounted to £49,029. The other charges to capital account were in respect of the purchase of additional land at Montreal, required for the improvement of the terminal accommodation there, & for land adjoining the terminals at Island Pond & Toronto for the necessary enlargement of the yards at those points. The board has authorized the construction of a new freight station at Montreal, the cost of which is estimated as \$50,000. The expenditure of £55,031 charged last year to capital on account of improvements to rolling stock is chiefly for the equipment of engines & cars with air-brakes & automatic couplers to meet the requirements of

the U.S. Safety Appliance Act, & Mr. Hays reports that before the end of this year it is expected that all the necessary equipment will be accomplished. The total expenditure on this account has already reached about £220,000, & a further outlay will be required during the current $\frac{1}{2}$ -year to complete the equipment of the remainder of the cars with the regulation coupler. This expenditure has been a heavy drain upon us, but it is an expenditure which is imposed by the Legislature of the United States, & it is impossible for us to do anything otherwise than accept it. I may say that all the new

stock realized during the $\frac{1}{2}$ -year, to £143,800. I would call your attention to this—that during the recent few months we have been able to exchange for 4% debenture stock a large number of our terminable bonds carrying rates of interest at 6 & 5%, with the result that a saving of £4,500 a year has been effected in our interest charges. Another million of terminable 5% bonds will fall due within the next two years, & their redemption will no doubt result in a further considerable saving, & then after that there is a still further larger quantity of bonds which will be dealt with in the same way.

Turning now to the revenue portion of the accounts, the gross receipts have satisfactorily increased over those of the corresponding $\frac{1}{2}$ -year, showing that the favorable business conditions which have existed for some time past have continued during the past $\frac{1}{2}$ -year. The passenger traffic has increased by £33,704, & the average fare per passenger is slightly increased. The receipts from freight & live stock traffic increased by £107,448. There has not been much variation in the volume of American or through freight traffic carried in comparison with the June $\frac{1}{2}$ -year of 1899. It only increased by 9,876 tons, or $\frac{3}{4}$ of 1%, but the local traffic was larger by 329,000 tons, or 9½%. The average gross rate per ton per mile was 1-5 of a mill, or 3-4% better than in the corresponding $\frac{1}{2}$ -year, caused by the more remunerative rates received from the local traffic, which, as I have just said, increased in a larger ratio than the through traffic. The receipts on account of express business show the gratifying increase of £7,638, & the miscellaneous receipts an increase of £7,683. The west-bound merchandise in the U.S. has fallen off considerably of late, owing, it is said, to the over-stocking of commodities in the West during the last fall & winter, & to high prices. On our own line, while the east-bound through traffic increased by 39,867 tons, the west-bound traffic decreased by 29,991, necessitating the return haulage of a larger number of empty west-bound cars, from which no revenue is derived, & thereby increasing the percentage of working expenses.

The increase in the gross receipts has to a large extent been neutralized by enhanced working expenses, caused partly by the larger train mileage run, but principally by the increased cost of fuel & rails, & in fact, all material required for the working of the traffic & the maintenance of the line. Rails, for instance, in the last $\frac{1}{2}$ -year, as contrasted with the corresponding $\frac{1}{2}$ -year of 1899, ranged at about an average of 69% higher, & the price of all other railway materials increased, as well as timber, in a very large degree; besides which, I may mention that we purchased a larger amount of material in 1900 than we



P.

GEORGE BELL REEVE,

The newly-appointed General Manager of the Grand Trunk Railway System.

cars built in our own shops, or purchased on renewal account, include, as part of their fittings, the air brake & automatic coupler. The supply of suitable cars for the proper conduct of our coal supply is quite inadequate for the Co.'s requirements, & the board, at the request of the General Manager, has authorized the purchase on capital account of 300 double-hopper coal cars of modern design, from which considerable economy in the transport & handling of fuel is anticipated. The total charge to capital on the accounts now presented to you amounts, after crediting £14,000 for premium received on debenture

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did in 1899, when we experienced consider-
able difficulty in getting our orders promptly
complied with. With reference to working
expenses, the maintenance of way expendi-
ture shows an increase of £8,220, due to the
charge on account of the new general offices
in Montreal, which I hope we shall see com-
pleted in the spring of next year. There was
a greater outlay for clearing snow in the early
part of the ½-year, but economies in other
items of which the abstract is composed com-
pensated for the increase. £15,402 is included
in the maintenance of way charges on account
of renewal of bridges & the reconstruction of
the Victoria Jubilee Bridge on the basis
authorized some time ago. In the motive
power department the expenses exhibit a
large increase, caused to a considerable ex-
tent by the rebuilding of a larger number of
locomotives & cars than in the corresponding
½-year. Of course, the enhanced rate of
wages & the higher prices of materials have
influenced the expenditure in this as well as in
other departments.

With reference to the renewal of our roll-
ing stock there are in process of construction
in the Montreal shops 1,000 standard 30-ton
box cars, the cost of which will be borne by
revenue or charged to the car renewal ac-
count. The greater portion of the material
has been for some time in readiness for the
building of these cars, but there has been
difficulty in obtaining delivery of some special
parts of the iron work required, which is,
however, now coming forward, & the cars will
be completed as rapidly as possible. Twenty-
four of the new standard engines are expect-
ed to be turned out of the locomotive shops
before the end of the year. The work on
these renewals has been somewhat retarded
by the boilermakers' strike, which is still un-
settled, & the work is being carried on with a
largely-reduced force. I should like to say
one word in eulogy of the two extremely cap-
able officers who preside over these depart-
ments—I allude to Mr. McWood, Superinten-
dent of the Car Department, & Mr. Morse,
Superintendent of the Motive Power Depart-
ment. They have worked with an ability &
zeal beyond all praise, & I think the thanks of
the shareholders are due to them.

The work on the bridges between Island
Pond & Portland has been hindered by the
delay in the delivery of the material contract-
ed for, but Mr. Hays reports that the renewal
of all the bridges between Montreal & Port-
land will be completed before the end of the
year. Owing to the high prices of material
but little work has been done on the renewal
of the bridges on the Southern division—that
is the division over which the Wabash has
running powers—for which \$230,000 was esti-

mated to be required. These bridges are
safe for the size of engines now used on this
section of the line, but they will have to be
renewed in heavier material to enable us to
run over them the heavier modern locomotives.
Meantime the bridge renewal account stands
as follows: The total expenditure originally es-
timated to be required for these renewals, &
for the revenue proportion of the cost of re-
constructing the Victoria Jubilee Bridge
amounted to £241,309, of which £172,795 has
been expended to June 30 last, leaving a bal-
ance of £68,514 of the original estimate un-
expended on June 30 last. There has been
charged to revenue to June 30 last, including
£20,000 specially allocated from the revenue
for the ½-year ended Dec. 31, 1899, £138,090,
leaving £103,219 still to be charged to clear
off the whole amount in 5 years from June,
1898, as originally contemplated, unless, as
the directors hope, the revenue of the Co. will
permit of its being discharged at an earlier
period.

In the charges for conducting transportation
the wages of the enginemen & firemen have
increased by nearly £13,000. The fuel has
cost more by £36,997, partly attributable to
increased consumption caused by the larger
engine mileage run, & the heavier loads hauled
at higher speed, & partly to the higher cost
at which the coal used for traffic purposes has
been charged out, notwithstanding that a con-
siderable portion of the fuel used had been
contracted for prior to the rise in prices. It
may be mentioned that part of the contracts
at the lower prices do not expire until early
next year, when it is hoped that normal
conditions will again prevail, but judging by the
circumstances now existing in the U.S. in con-
nection with the coal mining industry we must
not be too sanguine in this respect. With the
exception of the car mileage balance, which
has been against us to an increased amount
of £8,116, the other items in this description
of expenditure call for no particular comment,
but it will be observed that in the charge for
compensation for injuries there is a saving of
£6,547 & of £6,381 in the cost of the outside
agencies, which are favorable features in the
½-year's accounts. The general charges
show an increase of about £5,000, attributable
to the contribution of \$15,000, announced in
the last ½-year's report as having been sub-
scribed by the Co. towards the Patriotic Fund
raised in Canada for the relief of Canadians
disabled in the war in South Africa, & an
amount of \$10,000 on account of a total sub-
scription of \$20,000 to the capital stock of the
Pan-American Exhibition, to be held in Buffalo
in 1901, in connection with which a large
amount of traffic is expected to be carried
over our system. I took credit last time I ad-
dressed you for a very satisfactory reduction
in the ratio of working expenses as compared
with the gross receipts, but you will not be
surprised to hear that during the last ½-year
the ratio has somewhat increased again to
67.42, but I may take this credit to our man-
agement, that the percentage is considerably
lower than for any June ½-year prior to June,
1895, when the present board came into office,
& that even now the amount is slightly below
the average percentage since that date. Upon
this question of increased ratio of expenses,
from which railways are suffering all over the
world, the U.S. lines have suffered in common
with the Canadian lines. A return for July of
112 American railways exhibits a gross in-
crease of no less than \$5,430,000, with a net
gain of only \$138,000, & the same condition
of affairs is obtaining in this country also, as
you are all aware.

The result of the ½-year's operations was
as follows: There was an increase in the
gross receipts from all sources of £156,474, &
in the working expenses of £144,305, leaving
the net traffic receipts larger by £12,169 than
in the corresponding ½-year of 1899. The
net revenue charges, after deducting the cre-

dits to that account, amounted to £1,585 more, & the payments on account of the controlled lines were £5,078 less than in the ½-year ending June 30, 1899, & the increased amount available for dividend amounted, therefore, to £15,662, a result which, I venture to think, taking into consideration all the circumstances in connection with the ½-year's operations, must be regarded as satisfactory.

I should like to say one word in answer to some friendly critics who have upon more than one occasion charged me with being a pessimist, for this reason, that in stating to you the successful working of our Co. in recent times I have insisted so much upon the desirability of expanding largely, while we can do so, in the improvement of our line. And from that point of view only I admit the charge, & I earnestly reiterate my advice to the shareholders, to be patient with us in this matter. Considering that we have been able to distribute among the proprietors not far from £1,000,000 sterling in dividends during the last three years, I think they will not grudge to the board the spending, so far as they can safely do so, of further amounts upon the improvement of the line with the view to securing in a larger degree the prosperity of the Co. & thus enhancing the value of your securities. The great object of our practical managers is to economise as far as possible by increasing the train loads, thereby obtaining a reduction in the cost of working, which means increased profit. To do that money must be spent. I will give you an illustration of the economy which may be effected by improving the grades on some portion of our line. Between Brockville & Montreal at the present the average number of freight cars that an engine can draw is 34, but not very far from this point on the same section of the line—between York & Belleville—only 27 cars can be hauled. You will see at once how indispensable it is that this state of things should be improved, so that the Belleville section should be worked on the same basis as the Brockville section, & with the same economy. Therefore, you must not grudge us the reasonable outlays we propose in furtherance of these important works. I have received, every now & then, letters from proprietors who are somewhat impatient because they have not received dividends for a considerable period. I had one or two letters from 3rd preference shareholders wanting to know when we shall resume payment upon the 3rd preference stock, and rather complaining that we are spending money on the line which might go into their pockets. My answer to them is a repetition of what I said just now. I must ask them to be patient, & in the meantime what they do not get in interest they get in improved value of their security. The value of the 3rd preference stock when we took office, if I remember rightly, was about 12, & is now 21; therefore, even those less fortunate stockholders have some reason to be satisfied with what has been done during the last five years. I am not a pessimist. On the contrary, there is no one who has a greater faith in the future of this great company. I am convinced that the prosperity of the G.T.R. will continue to grow with the prosperity of the country through which it runs, & to which it adds so much prosperity itself. There is a great future before Canada; there is a great future for the American States through which our line passes, & with which it is connected, & I have the utmost faith in the permanent & stable prosperity of this company.

The report I have to make as to the Central Vermont Ry. affords a pleasant contrast with the statements made to you a few years ago. I am glad to tell you that the line, as reorganized last year, has been working most satisfactorily. The result of the first 14 months' working since it was taken over from the receivers on May 1, 1899, to June 30, 1900, shows that, after paying all its fixed charges, it has

earned a surplus of \$142,000, a matter of great interest to us because over & above our large holding of bonds, on which, by the way, we are receiving a regular income of \$60,000 a year, we are holders of \$2,215,000, or more than two-thirds of the whole of the capital stock of the Co. But Mr. Hays has, I think, very properly & prudently, urged upon the board the necessity of not distributing this surplus, but to devote it, & even for a limited period to go on devoting surplus earnings, to the improvement of the line. We took it over in a poor condition, with a shortage of cars & a very light motive power. These matters will have to be improved if the line is to be worked as profitably as it should be. What we propose then is, with your agreement, that the surplus earnings, for the present at all events, should be applied to the improvement of the line. That, of course, will only last for a limited period, & then we shall have a thoroughly well equipped line, working at, I hope, continued profit for the benefit of our proprietors. I can only hope that the success attending the reorganization of the C.V.R. is a good omen of what we may expect from the reorganization of the C. & G.T.R.

I should like, in dealing with the Chicago & Grand Trunk, to shortly recapitulate what we have done up to the present time, & what the actual position of the case is. I have explained to you on former occasions that a large amount of C. & G.T.R. 6% 1st mortgage bonds would mature on Jan. 1, 1900, that the traffic agreement between the G.T. & the Chicago & G.T. companies under which the interest on those bonds was secured terminated on their maturity. & I also informed you that it was indispensable that a considerable amount of additional capital must be raised & expended for doubling the track & improving the grades of the C. & G.T. line, & that the C. & G.T. Co. had no means either of providing for the bonds when due, or for the improvement of the line. The directors were not prepared, as had been suggested in certain quarters, to recommend the proprietors of the G.T.R. to provide out of its resources the money required for these purposes, for which they were neither morally nor legally responsible, & therefore to place the affairs of the C. & G.T.R. on a permanently satisfactory footing, the only alternative was reorganization, & I announced to you that a scheme with that object was in course of preparation. You were subsequently informed that a plan of reorganization had been promulgated by the C. & G.T. Co. to which the board had in the interest of the G.T.R. Co. assented, & then in furtherance thereof your directors had expressed their willingness to enter into a new agreement for the interchange of traffic with the C. & G.T. Co. when reorganized, whereby the interest at 4% on a 1st mortgage bond capital of \$15,000,000 proposed to be created by the new company would be fully secured. That was how the case stood when I last had the honor of speaking to you upon this subject. However, the terms proposed in the original scheme did not altogether commend themselves to the views of the bondholders, & they made overtures to the reorganization trustees with a view of seeing if some modification could not be made in a direction advantageous to their interest. The result was that conferences were held, & points of modification were agreed to. The most important of them was that, in addition to the guarantee under the traffic agreement between the two companies, the G.T.R. would give an absolute guarantee on the \$15,000,000 of bonds referred to as & when issued by the reorganized company. So far as we were concerned, we thought that as between one guarantee & the other it was a distinction without a difference, inasmuch as the security of the 30% of the G.T. gross earnings on the traffic interchange-

ed between the two companies, which is, if necessary, to be appropriated under the agreement, would be ample to meet the entire interest on the \$15,000,000 1st mortgage bonds to be created by the new company. However, it was stated to us—& no doubt, with reason—that the bondholders themselves & other investors attached importance to this additional security, & considered that it would enhance the value of their bonds, & therefore your directors had no hesitation in acceding to that not unreasonable request, & this we shall ask you to be good enough to confirm. A further modification of the scheme was that the C. & G.T. 5% 2nd mortgage bondholders are to receive 75% of the nominal amount of their bonds in the new 4% 1st mortgage bonds, & the remaining 25% in new 4% income bonds of the company to be created when reorganized, the interest on which will be payable when the net earnings of the company will permit, after providing for the interest on the 1st mortgage bonds, with this proviso, that the new company would be entitled at any time within 10 years to purchase those income bonds at 85. The scheme thus modified has been agreed to by an overwhelming majority of the 1st mortgage bondholders & almost entirely by the 2nd mortgage bondholders. Let me repeat to you that this 1st mortgage bond will be a 50 year gold bond, with the interest guaranteed by a valuable traffic agreement, & also by the unconditional guarantee of the G.T.R., & further, the bond will be secured by mortgage on the improved double-tracked road. Of course the G.T.R. Co. will receive its proportion of the new bonds in respect of the C. & G.T. 1st & 2nd mortgage bonds now held, & it is also in consideration of the guarantee, which I have mentioned, to receive the entire share capital of the reorganized company. This capital stock, it is fully anticipated, will prove a valuable asset when the contemplated improvements of the line are effected, for which ample provision is made by the reserve of \$4,500,000 of the 4% 1st mortgage bonds to be appropriated for that purpose.

Well, that is all I need have said about the C. & G.T.Co. I should have concluded my remarks, having made it, I think, clear to you that the arrangement is distinctly to the advantage of the G.T. shareholders, but I think it right to inform you that I yesterday received a letter from your former President, Sir Henry Tyler, enclosing a memorandum which he desired should be communicated to you at your meeting to-day. I doubt whether I should have proposed to submit it to you. The memorandum is couched in terms which I think would have fully justified me & my board in refusing to lay it before you. Sir Henry has been greatly wanting in self-respect in the manner in which he has attacked our board, & the language it has pleased him to use in the communication to which I alluded, I think, would have fairly entitled me to put the document in the fire & refused to lay it before you, but I am informed that Sir Henry is present himself to-day. That being so, there is no necessity for reading the memorandum, but I will ask Sir Henry to rise & repeat face to face—to the board whom he has attacked—the charges which he wishes to bring against us. The President concluded by moving the adoption of the report & accounts, seconded by Vice-President Jos. Price.

Sir Henry Tyler said the C. & G.T. Co. was owned and controlled by the G.T. Co., & when they were told in the Directors' previous ½-yearly report that the C. & G.T. Co. had promulgated a scheme, & that that scheme had been assented to by the G.T. Co., he could only say that it was a false pretence, because the whole thing was done by the G.T. Co. itself. The President of the C. & G.T. was the General Manager of the G.T., & had to obey this board; therefore this board

was responsible for that scheme, & not the C. & G. T. Co. When the G. T. Co. had undertaken by a solemn engagement to pay for 22 years longer 5% interest upon the 2nd mortgage bonds of the C. & G. T. Co., and when they promulgated a scheme & compelled them to accept that scheme, which gave a smaller interest, he could only characterize it as repudiation. All he asked was that the directors should be honest & fair. He concluded by moving the following proposition: "That this meeting respectfully requests the President & Directors of the G. T. R. Co. to reconsider the position of holders of C. & G. T. mortgage bonds, & not to allow those holders to be placed in a worse position than that which had been guaranteed to them by the G. T. R. Co." Mr. Philpotts seconded the proposition.

The President said he admired the courage—he might almost say the audacity—which had brought Sir Henry Tyler there, not as a G. T. shareholder, but as a C. & G. T. bondholder, to attack the interests of this Co., over which he had presided so many years. Sir Henry asserted they had repudiated a solemn & unconditional guarantee of interest upon the bonds issued in 1882. He (the speaker) absolutely denied that statement. This mortgage was a 2nd mortgage, & the day the 1st mortgage was unsatisfied & the line foreclosed & sold, that arrangement of 1882 fell ipso facto to the ground. For six years they had been paying out of their traffic balance £95,000 a year to make up the dividend of those C. & G. T. bondholders, & forsooth, Sir Henry Tyler came there & asked them, when there was no legal or moral obligation upon them to do so, to continue in perpetuity this terrible load! Sir Henry had not alluded to the fact of the enormous amount of money which was required to put the C. & G. T. in good order. Owing to the most extraordinary systems of finance which were in force in the G. T. Co.

some years ago, their capital had been piled up to cyclopean proportions, and, so far as the board was concerned, they would not do anything to add to their capital charge unless for matters of absolute necessity relating to their own line. Sir Henry, speaking with all the authority which ought to attach to a former President of the Co., accused the Directors of dishonourable acts. In the letter to which he had referred he called them highwaymen & compared them to the persecutors of Captain Dreyfus. He protested against such language being used to men of honour who had nothing to reproach themselves with. So long as they had the favourable verdict of their shareholders they could afford to disregard Sir Henry's ill-temper, his discourteous words and unfounded charges.

Sir Henry Tyler's proposal was put to the meeting & lost, amid loud applause. The original resolution was then put and carried unanimously.

The following resolution was unanimously carried: "That this meeting approves of the working arrangements proposed to be made in connection with the reorganization of the C. & G. T. R. Co., including the giving by this Co. of an unconditional guarantee of interest on an issue of \$15,000,000 4% 1st mortgage 50-year gold bonds, proposed to be created by the new Company to be formed under the reorganization, & that the Directors be & are hereby authorized to take such steps as they in their discretion may think advisable to give effect thereto."

A vote of thanks to the President & other directors was carried amid applause, one shareholder, in speaking to it, saying: "We must all admire, not the audacity, but the boldness & courage of our Chairman, who stood up in this room publicly & supported our cause, & would not allow us to be ruined—well, I will not say by whom."

RAILWAY FINANCE, MEETINGS, &c.

Boston & Albany.—The shareholders of the New York Central have ratified the action of the directors in taking a lease of the B. & A. R.R. for 99 years. The negotiations have been in progress for about a year, having been protracted by the delay of the Massachusetts Legislature in passing the necessary legislation. The lease has been dated back to July 1 last. The B. & A. mileage is as follows: main line, Boston to Albany, 201.65 miles; branches, 103.90 miles; leased lines, 88.40 miles; total 393.95 miles. The gross earnings for the year ended June 30, 1898, were \$9,241,568.39; expenses, \$6,088,069.12. An 8% dividend was paid for that year.

Calgary & Edmonton net earnings for Sept., \$10,142.23, against \$10,254.31 in Sept. 1899.

Canadian Northern—The remaining 20% on subscriptions to the £700,000 4½% 1st mortgage bonds on the Ontario division fell due on Nov. 2.

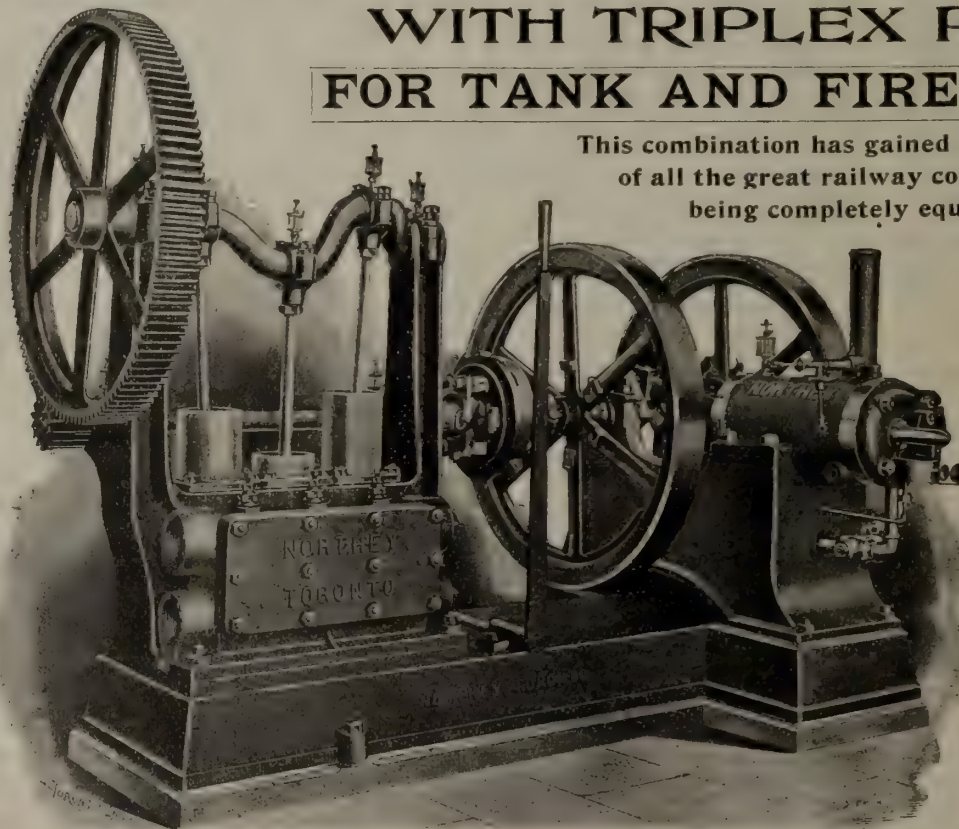
The Chicago & Grand Trunk Ry. was sold Oct. 31 under 1st mortgage foreclosure proceedings brought by the Mercantile Trust Co. of New York, in accordance with a decree of the U.S. District Court. General Manager C. M. Hays & E. W. Meddaugh, of Detroit, representing the stockholders of the road, were the only bidders, the road being sold to them for \$5,708,701.04. Of this \$5,437,000 represented the mortgages, & \$271,701.04 interest.

Dominion Atlantic gross earnings Jan. 1 to Sep. 30, \$640,489, against \$567,310 for corresponding period of 1899.

Great Eastern.—C. N. Armstrong, of Montreal, has taken action in the Superior Court against Mayor Prefontaine, calling on the latter to account for \$65,000, the purchase

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price of a property belonging to the plaintiff, & which was sold through Prefontaine to the South Shore Ry. Co., Prefontaine being entrusted with the money to pay certain claims. The property referred to is a portion of the Great Eastern Ry., between Yamaska & St. Gregoire, Que. Armstrong claims that Prefontaine did not fulfil the condition of the trust undertaken by him, & that especially he has not paid certain engineers who had prepared plans of the railway, & workmen who had assisted in the construction of the line. He also complains that other liabilities of the G.-E.R. & of the plaintiff have not been paid or discharged by Prefontaine, although he has received the moneys out of which these obligations were to be paid by him. Plaintiff asks that defendants be ordered to render an account of all the moneys received from the South Shore Ry. Co. & H. Beauchemin, also how they were disbursed.

Great Northern, U.S.A.—Gross earnings, July 1 to Sept. 30, \$7,554,253, a decrease of \$122,863 from corresponding period of 1899.

New Brunswick's Railway Claims.—Particulars of the claims of New Brunswick against the Dominion in connection with the Eastern Extension Ry. were given in our last issue, pg. 317. The arbitrators have decided that the contention made on the part of the Dominion that the \$150,000 voted in 1884 was in full of all claims by the Province in connection with this road is not sustained by the evidence, but that the facts & circumstances are altogether the other way. They also decided that the Dominion Government pay to New Brunswick the various semi-annual payments of \$3,750 to which it would have been entitled if this \$150,000 had been carried to the credit of the Province in 1869 instead of 1884, as they think it equitably should have been; together with interest at 5% on the several semi-annual payments from the time they would have been payable up to July 1, 1884, when the \$150,000 was credited. This sum amounts to \$145,218.75, & they have decided that the Province is entitled to be paid this also by the Dominion, with interest at 5% per annum.

Ontario & Quebec.—The $\frac{1}{2}$ -yearly interest due Dec. 1 on this Co.'s 5% debenture stock will be paid on that date by the C.P.R. Co. in London, Eng. Interest for the same period on the common stock of the Co. at the rate of 6% per annum will be paid on the same date at the Bank of Montreal, or at the London office of the C.P.R.

Ottawa & Gatineau.—It is said that arrangements are being made for the amalgamation of this Co. & the Pontiac Pacific Junction Ry. Co.

Pontiac Pacific Jet. Ry.—It is said that arrangements are being made for the amalgamation of this Co. & the Ottawa & Gatineau Ry. Co.

Qu'Appelle, Long Lake & Saskatchewan net earnings for Sept., \$3,934.47, against net loss of \$4,607.45 in Sept. 1899.

Quebec Central gross earnings for Sept., \$55,358.04, against \$52,927 in Sept., 1899; working expenses, \$34,479.09, against \$31,400.90; net earnings, \$20,878.95, against \$21,526.10.

Gross earnings, Jan 1 to Sept. 30, \$407,458.69, against \$386,787.70 for corresponding period of 1899. Working expenses, \$270,334.15, against \$246,193.53; net earnings, \$137,124.54, against \$140,594.17.

Quebec & Lake St. John.—The shareholders have authorized the directors to issue prior lien bonds, not exceeding \$170,000, bearing not exceeding 4% interest, as a first mortgage on the property. This is under power given by the Quebec Legislature last session. (Apl., pg. 103.)

U. S. Railway net earnings for Aug. on 135 roads, according to the Chronicle, were \$34,005,748, which is a gain of \$2,008,647, or

6.28% over the net of the same roads last year. This increase follows a gain of \$5,004,870, or nearly 20%, in the preceding year. There was an increase of \$6,915,392, or 7.53% in the gross earnings. Twenty-eight roads reported increases in net earnings of more than \$30,000, & 16 roads reported similar decreases. The Pennsylvania Lines east & west led in the increases with \$646,300; then follow the Atchison, Topeka & Santa Fe with \$327,875; the Reading, \$175,615; the Chesapeake & Ohio, \$172,477; & the Chicago, Milwaukee, & St. Paul, \$166,508. The largest decrease was of the Mexican Central, \$169,607. The Illinois Central showed a loss of \$137,390, & the Southern Pacific, \$121,430.

White Pass & Yukon.—Notice is given that the following documents have been deposited at the Land Registry Office, Victoria, B.C.:—Copy of mortgage made Oct. 16, 1900, between The B.C.-Yukon Ry. Co., The Pacific Contract Co., Ltd., & F. Pavy & C. C. Macrae; also copy of 1st mortgage bond, dated Oct. 16, 1900, from the B.C.-Yukon Ry. Co. to F. Pavy & C. C. Macrae, for £72,000, the bond being secured by the mortgage.

Grand Trunk Earnings, Expenses, &c.

The following statement of earnings, supplied from the Montreal office, includes the G.T. of Canada, & the Detroit, Grand Haven & Milwaukee Rys., the earnings of the Chicago & G.T., which is in the hands of receivers, being omitted:

	1900.	1899.	Increase.	Decrease.
July	\$1,844,458	\$1,799,945	\$44,513	....
Aug.	2,088,602	2,064,269	24,333	....
Sept.	2,117,690	2,178,393	....	60,613
Oct.	2,176,028	2,158,337	17,691	....
	\$8,226,778	\$8,200,854	\$26,537	\$60,613

Increase July 1 to Sept. 30, \$25,924.

CHICAGO & GRAND TRUNK.—The report presented at the recent annual meeting showed gross earnings for the year ended June 30, of \$3,900,000, operating expenses \$3,289,984, net earnings, \$612,046, a decrease of \$270,994 from the previous year.

C.P.R. Earnings, Expenses, &c.

Gross earnings, working expenses, net profits and increases or decreases over 1899, from Jan. 1, 1900:

	Earnings.	Expenses.	Net Profits.	Increase or Decrease.
Jan.	\$2,152,071.32	\$1,460,501.71	\$691,569.61	\$74,035.75+
Feb.	1,954,087.59	1,331,355.34	622,732.25	23,030.77+
Mar.	2,294,786.97	1,495,685.73	799,101.24	29,794.33+
Apl.	2,491,194.47	1,464,126.85	1,027,067.62	106,764.13+
May.	2,662,897.81	1,583,227.32	1,079,670.49	46,911.88+
June.	2,612,759.73	1,554,954.11	1,057,805.62	34,745.42+
July.	2,471,169.64	1,586,795.74	884,373.90	88,587.73+
Aug.	2,637,083.61	1,583,508.01	1,054,475.60	35,643.88+
Sept.	2,663,491.82	1,604,791.81	1,058,700.01	88,185.54+

\$21,940,442.96 \$13,664,946.62 \$8,275,496.34 \$114,564.23+
+ Increase. - Decrease.

Approximate earnings for Oct., \$2,765,000, against \$3,083,000 in Oct., 1899, decrease \$318,000.

SUBSIDIARY LINES.

DULUTH, SOUTH SHORE & ATLANTIC.—Approximate earnings for Oct., \$237,203; decrease from Oct., 1899, \$6,970.

Net earnings for Aug., \$110,083, against \$60,228 in Aug. 1899; net earnings for 8 months to Aug. 31, \$681,071, against \$529,585 for corresponding period.

HANCOCK & CALUMET.—Approximate earnings for Oct., \$22,571, decrease from Oct. 1899, \$2,526.

MINERAL RANGE.—Approximate earnings for Oct., \$30,725; increase over Oct. 1899, \$3,568.

MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE.—Approximate earnings for Oct., \$412,867; decrease from Oct. 1899, \$145,118.

Net receipts for July, \$80,464, decrease from July 1899; gross receipts for Aug., \$51,621, decrease from Aug. 1899.

Canadian Pacific Railway Land Sales.

	Acres.		Amount.	
	1900	1899	1900	1899
Jan.....	31,486	14,718	\$100,857.85	\$ 46,411.35
Feb.....	23,613	13,747	75,771.19	43,371.09
Mar.....	31,183	24,045	97,777.79	75,460.76
April.....	68,457	36,626	181,775.78	116,835.84
May.....	66,057	26,584	214,851.09	88,928.98
June.....	57,831	54,225	188,779.64	169,192.74
July.....	40,715	47,401	129,481.42	149,546.48
Aug.....	32,178	35,214	103,480.78	110,705.50
Sept.....	21,807	25,517	69,012.54	83,719.70
Oct.....	18,858	30,473	62,769.54	99,429.09
	382,185	398,550	\$1,224,557.62	\$983,602.13

Great Northern Railway, U.S.A.

The operations of the entire system of the G.N.R. Co., including the St. Paul, Minneapolis & Manitoba, in the year ended June 30, resulted as follows:

	1898-9.	1899-1900.
Passengers	\$3,750,338	\$4,652,091
Freight	19,779,209	22,533,020
Mail, express, rents, etc.	1,488,356	1,725,678

Gross earnings	\$25,017,993	\$28,910,789
Expenses & taxes	13,091,361	15,868,375

Net earnings	\$11,926,542	\$13,042,414
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Following is a summary of the income account of the entire system:

Gross earnings of railway system proper	\$25,017,994	\$28,910,789
Gross earnings of other proprietary companies	2,580,668	2,188,268

Total earnings of system ..	\$27,598,572	\$31,099,057
Operating expenses & taxes ..	14,861,108	17,075,533

Net earnings of system ..	\$12,737,464	\$14,023,524
Miscellaneous income	952,801	2,290,494

Total net of system	\$13,690,265	\$16,314,018
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Fixed charges & dividends on St. P., M. & M. stock	\$5,466,624	\$5,038,348
Dividend, 5% on G.N. preference stock	3,851,034	6,408,778

Funds for improvements & tun's ..	1,800,000	1,800,000
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Total disbursements	\$11,117,668	\$13,247,126
Surplus	\$2,572,607	\$3,066,892

The income account of the G.N.R. Co. is as follows:

	1898-9.	1899-1900.
Net earnings St. P., M. & M.R. \$	\$8,902,225	\$9,530,776
Interest on bonds owned	105,017	350,422
Dividend on stocks owned	2,134,620	2,958,855

Profits on treasury securities sold	68,152	689,076
Rent of leased lines	166,318	166,765
Interest & exchange	56,494	223,086
Bills receivable	3,616	3,740
Other income	139,608	213,379

Total	\$11,576,050	\$14,136,090
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Rent St. P., M. & M.R.	\$4,137,824	\$3,709,548
Divs. on G.N. stock	3,851,034	6,408,778

Fund for improvements & renewals St. P., M. & M.R.	1,200,000	1,200,000
Fund for Cascade tunnel	600,000	600,000

Total disbursements	\$9,788,858	\$11,918,326
Balance—surplus	\$1,787,192	\$2,217,764

The average mileage operated of the railway system proper was 5,076 miles (against 4,786); the number of passengers carried 2,483,670 (against 2,024,293); the average rate per passenger per mile 2.378c. (against 2.208c.); the quantity of freight moved 11,529,661 tons (against 10,002,810); the average rate per ton per mile 0.899c. (against 0.916c.); the ratio of expenses to receipts 54.89% (against 52.33%).

Alligator Boats.—A correspondent writes asking a definition of an alligator boat. It is so called from its amphibious character, & is often used in lumbering. It is built with a flat bottom shod with steel, & is equipped with paddle wheels & a powerful windlass driven by an engine. It is sent ahead of the raft, paying out the tow line, & after being fastened to the shore or anchored, the tow line is wound in on the windlass dragging the raft up to it, when the operation is completed. When a rapid or fall has to be passed by the boat a road is cut out along the shore, the tow line taken ahead & made fast, & the boat pulls itself across the portage by means of the windlass.

Calgary & Edmonton Railway Company.

Following is the report for the year ended June 30, 1900: The gross earnings, after deducting earnings from Government service, were \$319,500.58, against \$249,894.77 for the previous year, an increase of 27.85%. The expenses were \$197,861.63, against \$170,993.05 for the previous year, an increase of 15.71%. The percentage of expenses to earnings for the past year is 61.93% as compared with 68.42% for the previous year. The net earnings were \$121,638.95, against \$78,901.72. The earnings from passenger traffic (including Government service) were \$92,247.73, against \$71,731.33 for the previous year, an increase of 28.60%. Freight, express, mail & miscellaneous earnings (including Government service) were \$233,878.56, against \$185,389.59 for the previous year, an increase of 26.15%.

The gross earnings are satisfactory, as both freight & passenger earnings were entirely derived from regular traffic. The increase in operating expenses of \$26,868.58 is not excessive considering the increase in traffic & the fact that of this increase over \$20,000 is under the heading "Maintenance of Way & Structures," & includes the cost of a new bridge over Willow Creek. During the year all bridges were thoroughly repaired, a large number of ties were put in, & the road generally was put in fair condition to meet the requirements of increasing traffic, & as it is expected that traffic will continue to increase it will be necessary for the next few years to expend a considerable sum annually in renewal of ties, ballasting & otherwise improving the road-bed.

The following is a comparative statement of freight carried as compared with the previous year:

	1898-1899.	Tons.	1899-1900.	Tons.
Flour	18,664 bbls.	1,867	21,510 bbls.	2,151
Grain	787,072 bu.	15,872	992,610 bus.	18,700
Live stock	26,892 head	11,015	32,249 head	13,545
Lumber	6,671,700 ft.	8,464	7,288,620 ft.	9,824
Firewood	912 cords	1,370	638 cords	956
Manf. goods.		14,988		22,270
Other articles		7,112		10,277
		60,688		77,724

The increase in grain, cattle & manufactured goods is particularly gratifying & the steady stream of immigration to the districts tributary to the railway & the very large area of land being taken up by new settlers & brought under cultivation, indicates that a still further increase in traffic may be expected.

The export of dairy & other farm produce continues to show very satisfactory increase.

The net earnings for the year were sufficient to pay 3½% in cash on the bonds, leaving with the balance carried forward from last year \$56,453.50 carried forward to next year. The cost of building the connection with the Crow's Nest line .857 miles, including the bridge over the Old Man's River which forms part of the connection, was \$25,619.15, of which \$24,000 was disbursed by the Co. up to June 30, 1900, the balance having been paid since. The cost of this connection has been paid out of the above-mentioned balance of net earnings. The bonds authorized on this mileage—£3,200 (\$15,573.33)—have been created, but are still held by the Co.

ASSETS.	
Cost of road	\$6,456,440 00
Crow's Nest Pass connection	24,000 00
Sundry debtors	26,915 16
Cash in bank	9,040 96
Interest deferred	586,836 05
	\$7,103,232 17

LIABILITIES.	
Capital stock paid up	\$1,000,000 00
First mortgage bonds sld	5,458,940 00
Coupons due & not presented	1,002 62
Interest unpaid	586,836 05
Profit & loss account	56,453 50
	\$7,103,232 17

EARNINGS.	
Balance brought forward	\$ 33,148 70
Passenger	\$ 92,247 73
Freight	223,632 82
Expenses	3,276 51
Mail	5,944 65
Miscellaneous	1,024 58
	\$326,126 29

Less Government service included in above	6,625 71
	\$319,500 58

	\$352,649 28
Balance brought down	\$154,787 65
Interest received	281 60
	\$155,069 25

OPERATING EXPENSES.	
General and legal	\$ 3,111 73
Conducting transportation	36,284 73
Management	9,599 64
Motive power	46,757 96
Maintenance of way and structures	98,854 87
Maintenance of cars	9,238 70
	\$197,861 63

Balance carried down	154,787 65
	\$352,649 28

INTEREST ACCOUNT.

1½% paid on account Jan. 1, 1900, coupon	£14,021	5	0
2% paid on account July 1, 1900, coupon	22,434	0	0
	£36,455	5	0
Less Government subsidy for year, \$80,000	16,428	7	2
	£20,016	17	10
Expenses re service of coupon (London)			\$97,725 79
Balance carried forward			889 96
			\$5,453 50
			\$155,069 25

As security for the annual subsidy the Government retained & now hold 407,402 acres of the Co.'s land grant.

Following is the official list: President, H. C. Hammond, Toronto; Vice-President, N. Kingsmill, Toronto; Secretary, R. A. Smith, Toronto; other directors, E. B. Osler, D. W. Saunders, W. P. Torrance, Toronto; C. E. L. Porteous, Montreal.

The C. & E. Ry. was opened in Oct. 1892. The C.P.R. operated the line until July 1, 1896, & had the option at that date of acquiring the bonds at 110% & of having the capital stock transferred to it free of charge. This option was not exercised & a new agreement was entered into whereby the C.P.R. will operate the line until July 1, 1901, at actual cost, without charge for general management or for interest on the value of the rolling stock used, & with certain arrangements for allowances to this Co. for traffic interchanged. By this agreement the net earnings & the Government subsidy of \$80,000 a year for 20 years from July 1891 for hauling Government traffic are applicable to the payment of interest on bonds.

The Mica Boiler Covering Co.

This Co. has received the very gratifying intelligence from the Canadian Commission at the Paris Exposition, that it has been awarded the grand prize diploma for its exhibit there. The articles exhibited were a model of a steam engine covered with mica locomotive lagging, & also samples of mica pipe covering. The Co. is naturally very pleased at this, as it is an endorsement of the qualities that it has always claimed for its pipe & boiler coverings, & adds one more to the numerous testimonials as to the high efficiency it shows.

The Co. last spring opened a factory in Montreal, in addition to its Toronto works, in

It Leads Them All.

Where accurate Weighing is required use

GURNEY STANDARD SCALES.

WE MAKE SCALES FOR ALL PURPOSES. ALSO THE REED RECORDING ATTACHMENT FOR RAILROAD TRACK SCALES.

Write For Descriptive Circular.

The Gurney Scale Co.,

HAMILTON, ONT., CANADA.

order to meet increased demands for its coverings, since which time it has been run to its utmost capacity to fill orders; in fact, so much so that it has lately had to get additional room. Among some of the large orders that have been placed with the Co., that of the pipe & boiler covering required at the Royal Victoria Hospital, Montreal, is perhaps the most important. The steam plant is being installed there by a U.S. firm which has always hitherto used the best & purest magnesia that could be got; in this case the firm preferred mica, even to the extent of replacing a quantity of the old magnesia covering, that had been there before, with mica covering.

The Co. has lately placed on the market a sectional pipe cover which differs from the well-known flexible covering in that it is in a moulded form, & except that it still preserves the concentric circles of flakes of mica, is to all appearances like any other sectional cover on the market. It is meeting with great favor, & the Co. finds a market for every foot of it that it can turn out, & at good prices.

Grand Trunk Betterments, Etc.

Coal Plant at Portland.—The Co. is establishing a coal handling plant at Portland, Me. It will have 4 coal towers, similar to those of the Dominion Coal Co. at Windmill Point basin at Montreal, capable of storing 3,000 tons, which will be handled from the vessels to the bins or cars, as the case may be, by "clam shells." The expenditure will be between \$60,000 & \$65,000, & the plant is expected to be ready for service during Dec.

Abolition of Montreal Level Crossings.—Several conferences have been held lately between Montreal City Council & representatives of the Co., & an agreement has practically been reached. The proposed cost, comparatively speaking, is not great, involving, as it does, for a work of such magnitude, the expenditure of only \$1,500,000, half of which it is proposed shall be borne by the city & the other half by the Co. One of the alternative plans submitted would have cost twice that amount, & a third over thrice. The latter, however, called for the raising of all the tracks as far as Victoria bridge, which was felt to be entirely beyond the requirements of the city for many years to come. The objection to level crossings in St. Gabriel's Ward is to be met by the construction of three additional subways at important points in that section, so that the elevation of the tracks for the present will only be carried as far as Atwater Avenue, which marks the dividing line between the city & St. Henri. In future years, when the growth of population, the increase of traffic & the expansion of commerce demands it, the elevation of the tracks throughout Point St. Charles & across St. Henri may be continued without any difficulty. All the

tracks in the yard at Bonaventure station are to be raised to a height of 16 ft., all the passenger tracks being carried at that altitude as far as Atwater Avenue, when, by an easy grade, they will be carried to the low level in St. Henri. In the neighborhood of Lusignan Street a single inclined track will convey the freight trains to the level at Mountain St., where will be one level crossing protected by gates. As freight is only to be permitted to enter the city late at night, & to depart early in the morning, it is felt that this single level crossing will prove neither inconvenient or dangerous. All the G.T.R. freight sheds are to be located east of Mountain St., thus being gathered into an area untraversed by streets, with the exception of Albert, which, however, is retained mainly for the use of teamsters & not for the convenience of the general public. The space between the two stone walls flanking the elevated tracks on either side is to be filled in with earth. At the station there are to be elevators for passengers & lifts for baggage, as well as two easily graded inclines up which trucks may be run. See plans on this page & on page 336. (Aug., pg. 233.)

Fast Track-laying.—Eight miles of rails between Dorval & Ste. Anne de Bellevue, Que., were laid on a Sunday recently without the slightest interruption to traffic, by a force of 120 men working from 7 a.m. to a little before 6 p.m. On the Toronto-Hamilton line $7\frac{1}{2}$ miles were recently laid in 10 hours by 95 men.

Ottawa to Brockville.—A report that the Co. is having a survey made for a line between these points is incorrect. See under heading "Ottawa, Brockville & St. Lawrence Rv."

Thousand Islands Jet. is to be moved about $1\frac{1}{2}$ miles east to the top of the hill, to avoid the difficulties & danger involved in stopping trains at the bottom of the hollow in which the station is now located. The work has commenced. (Aug., pg. 234.)

The Pottawatamie River Bridge, near Owen Sound, is being replaced by a steel thro' girder structure 98 ft. long.

Port Credit.—The bridge at Port Credit on the Toronto-Hamilton line is being raised $12\frac{1}{2}$ ft.; the track on each side of it is being levelled, & the station has been moved to the top of the hill. This will remove the worst gradient on this line, reducing it 17 ft., by raising the bridge $12\frac{1}{2}$ ft. & lowering a hill $4\frac{1}{2}$ ft., obviate winter delays & generally facilitate traffic. The work is being done without any interruption of train service.

Hamilton.—At a recent conference between the Mayor & General Superintendent McGuigan, the question of renewing the high level bridge & bridging Strachan St., was discussed. Mr. McGuigan would not give any assurance that the work will be done.



Single arches, with a 45 ft. roadway, & 2 sidewalks, each 6 ft. wide, are to cross Lusignan, Richmond, St. Martin, Seigneurs, Chatham, Canning, Fulford, Drummond, & Vinet, Montreal, in connection with the high level track scheme.

He intimated that the Co. is contemplating running all through trains across the Beach, instead of over the Toronto branch between Burlington & Hamilton. General Manager Hays, when at Hamilton recently, said there was nothing new about the establishment of an up-town station.

Hamilton-Niagara Falls Double Track.—Work is being proceeded with rapidly on the double-tracking of the line between Hamilton & Niagara Falls, a distance of about 43 miles. By the close of this season about $25\frac{1}{2}$ miles of the second track will have been completed from Hamilton to within a short distance of Jordan. Considerable grading has been done between Jordan & Niagara Falls. At the crossing of Jordan River the line will be straightened by re-diverting it to its old site of some 20 years ago, & a new bridge will be built. This is pretty heavy work, & is not expected to be completed before the fall of 1901. The masonry for the draw-bridge to be built over the Welland canal has been finished, but the bridge will not be erected till well on into next year. It is expected to have the whole of the work through to Niagara Falls completed by the end of 1901. The line is being laid with 80 lbs. rails, which have been specially rolled with a 6 in. base instead of a 5 in. one. (Aug., pg. 234.)

Brantford & Main Line Trains.—Several surveys have been made for the proposed cut off for main line trains to run through Brantford, but no decision as to construction appears to have been arrived at. (Aug., pg. 234.)

At Brantford the Buffalo & Goderich track is being raised, & the old Great Western track is being lowered so as to cross underneath it. This necessitates a lowering of the grade on the latter line to the street levels, & a raising of the Buffalo & Goderich track, entailing considerable work. It has not been decided, as stated by a local paper, to do away with the Y east of the G.T.R. station.

Meaford Extension.—Grading has been started on the extension of the line at Meaford to the harbor, to make close connection with boats & with the elevator which is being erected there. (Jan., pg. 6.)

Port Robinson to Welland Jet.—The second track between these points, about 7 miles in length, has been completed & put in use.

Fort Erie to Welland Jet.—This line, 18.60 miles, has been relaid with 80 lbs. rails. The whole of the line between Fort Erie & St. Thomas is now laid with that weight.

International Bridge.—Work is progressing satisfactorily on the renewal of this bridge between Fort Erie, Ont., & Buffalo. Nothing has been done upon the masonry except some repairs & renewals of a very trifling character; the superstructure, however, is being wholly renewed. The weight of the old superstructure was 3,589,994 lbs., while the one now under construction will weigh about 9,000,000 lbs. (Aug., pg. 234.)

Chicago & Grand Trunk.—In double-tracking this line it is intended to reduce some of the heavy grades materially, so as to obtain, if possible, a $\frac{1}{2}\%$ maximum grade throughout the line. (Aug., pg. 234.)



The above shows a half-section of the double arch to cross Atwater Avenue, Montreal. Each archway is to be 30 ft. in width. The highest point of passage, from the ground level to coping-stone, will be 14 ft. The sidewalks on the outer edge of each archway will be 4 ft. wide. Double arches, on a smaller scale, similar in construction, will also be placed at Fulford, Guy & Mountain Streets.

Central Vermont.—Work was started Oct. 12 on the extension of the Montreal & Province Line Ry. from Farnham to Freleighsburg, a distance of 18 miles, the intention being to complete the work this year. A line was in operation over this route about 25 years ago, but was abandoned. The country is generally level & the work will be light. Stations will be established at Stanbridge North, Stanbridge East, Riceburg & Freleighsburg. The work is being done directly by the Co. Operations will be commenced as soon as the extension is completed. (Aug., pg. 238.)

The Co. is reported to have let contracts for steel bridges at Winooski, West Berlin, Northfield, East Granville, Royalton, West Hartford & Richmond, & for 12 or 15 plate girder structures on the Southern division.

C.P.R. Betterments, Construction, Etc.

Atlantic Division.—During the last week of Sept. & the first week of Oct. exceedingly heavy & continued rains fell in New Brunswick, doing great damage to the Co.'s lines. Between 25 & 30 washouts occurred, mainly between Fairville & Vanceboro, on the St. John-Montreal line, & along the branch lines. These ranged from slight washouts from 2 ft. deep, to huge excavations up to 15 ft. deep & over 100 ft. long; several trestles were extensively damaged & some culverts washed out. Through traffic was entirely suspended on the St. John end of the line from Oct. 11 to 19, & passengers had to be conveyed from St. John up the St. John River to Fredericton, thence by team to Fredericton Jct., & vice versa, this route having to be used both for the St. John-Montreal & for the St. John-New England traffic. Superintendent Timmerman & Division Engineer Barber were incessantly on the line superintending repairs, & had about 1,000 men at work. Manager Tait went down from Montreal to look over the situation. It is said the cost of repairing the main lines & branches will be nearly \$100,000.

Windsor St. Station, Montreal.—Good progress is being made on the westward extension of this building for station & general office purposes. The masonry is completed & interior work is now being done, it being the intention to have the extension completed for occupancy early next spring. (Dec. '99. pg. 348.)

The trestle approach to the station from the west is being replaced with permanent work,

& the Co. is allowing some property it has bought to be filled in with material from foundation excavations, etc., with a view to utilizing it for additional side track room later on.

Montreal to Toronto.—Under the direction of the Chief Engineer of Construction, A. C. Dennis is surveying a new line from Claremont, on the Montreal-Toronto line 310 miles from Montreal, to about 1½ miles west of Agincourt, also on the Montreal-Toronto line, a distance of about 17 miles. The survey runs north of the present line, the object in building the proposed diversion being to reduce the gradients, which are now 1%. The new line is expected to run pretty close to Markham.

Smith's Falls Divisional Offices.—The staff have moved into the new quarters recently completed. The building is a 2-story frame one on stone foundations, 36 ft. x 55 ft., with bay windows. There is a passage-way through the centre of the building, with rooms on each side. On the ground floor are conductors room, B. & B. Master's office, Roadmaster's clerk's office, Roadmaster's office, Trainmaster's office, telegraph office, & booking room. On the first floor are Superintendent's office, Chief Despatcher, despatchers, stores, Superintendent's clerks, Resident Engineer, draughting room. There is a lavatory on the ground floor. The building is heated by steam. (Jan., pg. 6.)

Chateau Frontenac.—Several of the directors recently visited Quebec, & as a result it has been decided to make a large extension to this hotel. President Shaughnessy & Bruce Price, architect, of New York, subsequently went to the Chateau to look the ground over, & it is understood Mr. Price is now working on plans for the extension. Some difficulty is being experienced in obtaining the necessary land.

Ottawa Connecting Line.—Nothing is likely to be done this year about the construction of the proposed line to connect the Co.'s union station near the Chaudiere Falls with the central station near the canal basin, but it is said to be probable that construction will be gone on with next year. It is said the options on property that are necessary have been secured. (Aug., pg. 232.)

The Ottawa Union Station is rapidly nearing completion, & it is expected that it will be ready by Dec. 1. The design may be described as being of the modern American style of architecture, savoring considerably

of the Romanesque. The building has a frontage of 156 ft., & is 40 ft. deep. A wing on the east side will have a frontage of 35 ft., & will be 80 ft. deep. The station will be almost twice as large as the old one, which had a frontage of about 50 ft. The centre pavilion runs up 4 stories. The building will have a high pitch roof of Rockland slate. Its foundations are on solid rock, 12 ft. from the surface. For 3½ ft. above the foundation the walls are of Scotch granite & above the masonry is white Scotch fire brick. The windows are all large & fitted with English sashes. The central room will be a general waiting room 32 by 40 ft. It will also contain a ticket & telegraph office. To the right of this room will be the 1st class waiting & smoking room for men & a 1st class waiting room for women. Between the two a corridor will extend to the north end of the building, at which will be situated the restaurant, kitchen & pantry. To the left of the main waiting room will be the 2nd class waiting room. At the extreme left there will be the 80-ft. wing, which is to be utilized as a general baggage room & as the office & store room of the Dominion Express Co. Upstairs will be situated the offices of the Superintendent & staff; train despatchers, Trainmaster, Roadmaster, Building & Bridge Master, & three spare offices. The building was commenced on July 20, & is expected to cost about \$25,000. The station is situated 50 ft. back from the road, between the aqueduct & the Richmond Road. Ample space will be allowed for vehicles in front of the station. Six tracks for passenger trains have been constructed to connect with the new station. Two platforms, with umbrella roofs, 700 ft. long, have been built between these tracks. The platform at the rear of the station is also covered by an umbrella roof. The old station site & tracks will be used as an extensive freight yard. The new station is about 5 ft. above the former one & this difference in level has been filled in & graded. E. Maxwell, Montreal, is the architect. An illustration of the station is given on page 329. (Aug. pg. 232.)

Eastern Division Shops.—An Ottawa paper recently stated very positively that the Co. was preparing to erect extensive workshops on its property at Westboro, a suburb of that city, to employ 1,500 men, so that a considerable amount of the work which is at present done at Carleton Jct. might be done at Westboro, & that the electrical power of the Metropolitan Co., conveniently situated at Britannia, would be used. We are officially

The Haliburton Lumber Company, LIMITED.

All Kinds of Hard and Soft Timber and Lumber,
Shingles, Slabs and Tan Bark.

PINE, SPRUCE, HEMLOCK AND BIRCH BILL STUFF CUT TO ORDER.

MILLS AT INGOLDSBY, ONT.

Head Office, Henderson Block, Corner Queen and Yonge Sts., TORONTO.

informed that there is no truth whatever in the rumor.

Spur from Webbwood.—The Spanish River Pulp Co. is building a spur from $1\frac{1}{2}$ miles long, starting from the Sault Ste. Marie branch about 4 miles east of Webbwood. (Aug., pg. 232.)

Dyment to New Klondike.—The spur of 7 miles from Dyment, 182.1 miles west of Fort William, to the New Klondike mining district, has been completed. (Aug., pg. 233.)

Branch to Manitou Lakes.—A deputation waited on Manager Whyte in Winnipeg a short time since urging the construction of a branch from the main line of the C.P.R. to the Manitou lakes. Several routes were discussed, the one from Dyment to Mosher Bay being considered the most favorable, owing to a spur having been built from Dyment to the New Klondike. A charter for a line through this district, starting from the C.P.R. main line, between Dryden & Tache stations, & connecting with the Ontario & Rainy River Ry., between Sturgeon Falls & Fort Frances, was granted at the last session of the Ontario Legislature to the Wabigoon & Rainy Lake Ry. Co.

Lac du Bonnet Branch.—Track laying has been completed on this branch from Molson, on the main line, to Lac du Bonnet, 28.8 miles. There will be considerable brick

run through the centre; on each side of this there will be a 12 ft. 6 in. roadway for general traffic, & running by the side of each roadway will be a 6 ft. sidewalk for pedestrians. The decline commences at Fonseca Avenue on the south side, & continues a like distance to the north of the track, a point some distance on the south side of Sutherland Avenue. The decline is 1 ft. in 15, to a depth of 12 ft. 6 in., the C.P.R. tracks to be raised 1 ft. from their present level. When the C.P.R. track is clear of trains there will be 45 ft. on each side of the subway opening, on the level, which will be open for street traffic as at present. The City Engineer approved of the plans. The question has been considered at several meetings of the City Council recently. The Winnipeg Electric St. Ry. Co. objected to the depth of the subway, proposing that it should be 14 instead of 13 ft.; the City Council decided in favor of this contention, and also for an increase of width from 42 to 60 ft., in consequence of which further negotiations are going on between the city & the Co. (June, pg. 175.)

Plans have been prepared for extensive alterations, improvements & extensions in the yards, shops, etc., at Winnipeg, involving a large expenditure & providing for the requirements for traffic for some years to come. (Feb., pg. 39.)

about completed. Page Wire Fencing has been used on the whole of this branch. (Aug., pg. 233.)

Pipestone Branch Extension.—Grading & track laying have been completed to Arcola, 95 miles west from Menteith Jct. At present the line is only being operated to Manor, 76 miles from Menteith Jct., but it will probably be opened through to Arcola very shortly. (Aug., pg. 233.)

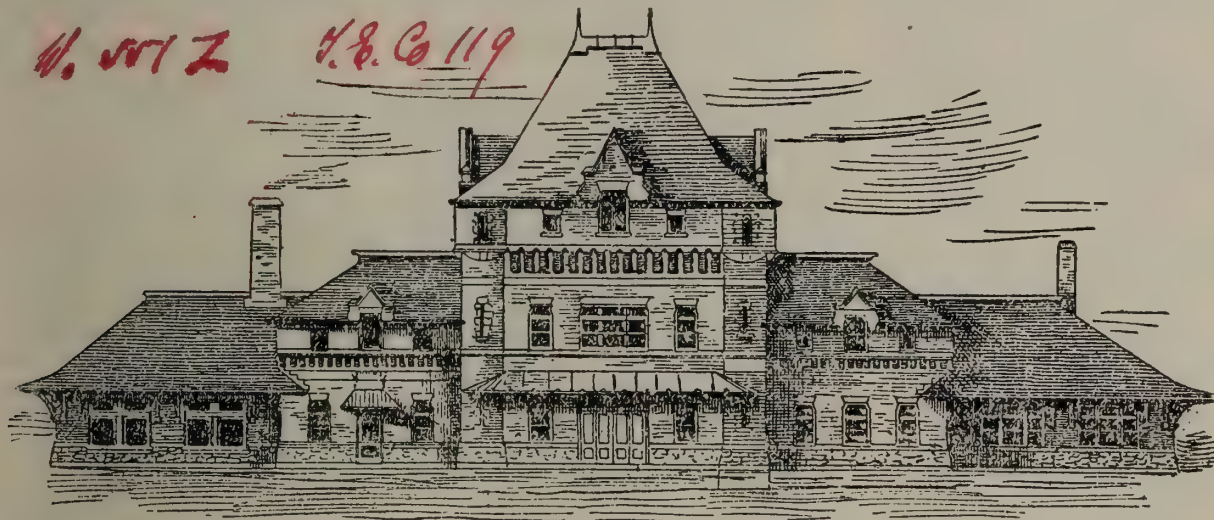
The Acton Burrows Co.'s enamelled iron plates are being used for station names on this branch, instead of painted wooden signs.

The Broadview Dining Hall, destroyed by fire last spring, will not be rebuilt, as there is sufficient accommodation for this service in one end of the station.

Banff Hotel.—It is reported that an addition containing about 75 rooms will be built ready for next season, at a cost of some \$60,000.

Crow's Nest Pass.—It is said the management has under consideration the building of a tunnel, about 1,000 ft. long, to do away with the long loop near Fernie, B.C.

Proctor to Nelson.—Track laying has been completed on this section of the Crow's Nest Pass Ry. between Proctor's Creek, on the south side of the west arm of Kootenay lake, & Five Mile Point, where connection is made with the portion of the Nelson & Fort Shep-



CANADIAN PACIFIC RAILWAY UNION STATION, OTTAWA.

traffic over this branch, a large brick-yard having been started near the lake early in the summer. A number of settlers have gone in lately, & occupy lands on both sides of the lake. (June, pg. 173.)

Winnipeg Terminals.—On pg. 304 of our last issue we gave particulars of an interview President Shaughnessy had with the Winnipeg City Council during his recent western trip. On Oct. 16 a largely attended public meeting was held in Winnipeg when it was explained on behalf of the Council that the C.P.R. would build the subway & be responsible for all damages to property in connection with the work. The Co. estimated the cost of the work at from \$120,000 to \$130,000, but all it would ask the city to contribute in any case would be \$60,000. In consideration of the city contributing this amount, the Co. would agree to pay school taxes, frontage taxes & business taxes on the hotel property. A resolution endorsing the Co.'s proposal, & recommending its acceptance, was adopted almost unanimously.

The Co.'s engineering department has prepared plans for the subway & submitted them to the City Council. The width of Main St. at the crossing point is 132 ft., & it is proposed to construct a subway 42 ft. in width. The street railway track, about 5 ft. in width, will

The West Selkirk Branch is being extended from West Selkirk about 24 miles, to the west shore of Lake Winnipeg, J. A. McArthur having the grading contract. The line will be an easy one to construct. It passes through a good agricultural district, especially north of Clandeboye. It is not expected that any track laying will be done until next spring. A summer resort, to be called Whyteswold, after the Manager of the Co.'s western lines, is to be established at the lake terminus of this branch. It will be about 42 miles from Winnipeg, & it is said to be the intention to give a passenger service covering the distance in an hour. To enable this to be done the old part of the branch between Winnipeg & West Selkirk is being improved & heavier rails are being laid on it. (June, pg. 172.)

Dauphin Branch.—A local paper states that a survey is being made for a branch from Westbourne, on the Manitoba & Northwestern branch, 16.9 miles north-west of Portage la Prairie, into the Dauphin district. It is said the survey touches Lake Dauphin at Bovette's, & that it is already made to Ste. Rose du Lac. This branch would be a competitor of the Canadian Northern.

McGregor-Varcoe Branch.—Track laying on the 26½ miles graded from McGregor is

pard line between Five Mile Point & Nelson recently purchased by the C.P.R. It would have been extremely difficult to have located another line along the south shore of the west arm of Kootenay lake west of Five Mile Point, where the Nelson & Fort Sheppard Ry. had already been constructed. The C.P.R., therefore, bought from the N. & F.S.R. the portion of the latter line from Five Mile Point to Nelson, about 5 miles, the N. & F.S.R. retaining trackage rights into Nelson & terminal facilities, & maintaining connection with the C.P.R. at Five Mile Point for its line from there to the International Boundary, where connection is made with the Spokane & Northern. Considerable work in the way of improvement has been done on the section between Five Mile Point & Nelson since it came into the C.P.R. Co.'s possession. (Aug., pg. 233.)

The station to be built at Nelson will be 102x32 ft. In the basement there will be the furnace & fuel room. The ground floor will contain general waiting room, ladies' waiting room, ticket office, lavatories, baggage & express rooms. The first floor will be devoted to offices as follows: Superintendent, Superintendent's clerks, despatchers, Trainmaster, Engineer, Engineer's staff, Roadmaster & Bridge Inspector, Port Captain,

Port Steward, extra office for visiting officials, & lavatories. The contract has been let to J. Hepburn.

The freight sheds, which will be located on the south side of Baker St., & immediately south of the present station, will be 245x40 ft.

Slocan District Stations.—D. J. McGregor, of Kaslo, has been given contracts for building stations at Sandon & New Denver. The Sandon building will be for passengers & freight, & the New Denver one for passengers only.

Columbia River Bridge.—Work has been started on the construction of a bridge over the Columbia river at Sproat's Landing, about 1½ miles below Robson, to connect the latter place, which is the western terminus of the line from Proctor, on Kootenay lake, with West Robson, on the Columbia & Western Ry., from West Robson to Rossland, & from West Robson to Midway. At present passengers & freight cars are transferred by a scow ferry, necessitating the maintaining of two stations, at Robson & West Robson, & requiring a large staff to handle the slips & transfer vessels. At the eastern end of the bridge there is an approach of about 2,000 ft., which will at first be a trestle structure, crossing Pass Creek slough, 1,400 ft. long, & the remainder will be graded. This trestle will be filled in from the long cutting to be taken out at the western approach as soon as the bridge is completed. The bridge proper will have at the eastern end 2 deck girder spans, each 50 ft. clear, then a deck girder swing span giving openings of 54 ft. on each side of the pivot pier, then there will be 2 thro' truss spans of 200 ft. each clear opening, & a deck girder shore span of 50 ft. on the west bank. The western approach will be 2,000 ft. long, connecting by Y tracks with the Columbia & Western Ry. at Castlegar station. There is 25 ft. of water at low water, the river rising from 35 to 40 ft. about May or June. The current is about 4½ miles an hour. The rail level of the bridge will be 85 ft. above the river bed. John Gunn, of Winnipeg, who has the contract for foundations & piers, has commenced getting out piling & stone for the foundations. H. W. D. Armstrong is resident engineer in charge of construction.

Grand Forks, B.C., to Republic, Wash.,—A Grand Forks paper credits the C.P.R. with the intention of building from there to Republic, over which route is projected the Republic-Grand Forks Ry., in which C. J. McCuaig, of Montreal, is interested. The paper referred to asserts that early in Oct.

the C.P.R. had a preliminary location survey made with lightning rapidity, so that filling could be done at the same time as its competitors, & that the C.P.R. has begun running its permanent survey.

Pacific Division Main Line.—The portion of the Mountain section between Palliser & Donald, 28.9 miles, is being relaid with heavier steel rails than those heretofore used.

A spur is being built east of Kamloops station, where facilities are being provided for storing 2,500 tons of coal. In future Kamloops will be the base of supply for coal for locomotives running from that point, the coal being procured from Vancouver Island.

Vancouver & Lulu Island Ry.—Grading has been finished from Vancouver to the north arm of the Fraser River, 5¾ miles, & track has been laid for 4 miles, the balance to be completed shortly. The line will be operated by steam, instead of by electricity, as originally intended. Connection will be made with the C.P.R. main line at the west end of Vancouver. (June, pg. 173.)

Duluth, South Shore & Atlantic.—The extension from Newton, on the Houghton branch, has been completed to a point near Trout Creek, & is being rapidly pushed through to Lake George, on the main line. The present mileage of the road will soon be increased by 75 miles of new line.

RAILWAY APPOINTMENTS, ETC.

Boston & Maine.—H. E. Fisher, heretofore Assistant Treasurer, has been appointed Treasurer, succeeding A. Blanchard, resigned.

Canadian Pacific.—A. C. Shaw, heretofore Excursion Clerk in the General Passenger Department at Montreal, has been appointed Acting General Agent of the Passenger Department at Chicago, succeeding J. F. Lee, who resigned to accept the Traffic Managership of the White Pass & Yukon.

Dominion Atlantic.—W. Fraser's title has been changed from Assistant Superintendent to Traffic Superintendent, with headquarters at Kentville, N.S.

Grand Trunk.—C. M. Hays having resigned the General Managership to accept the Presidency of the Southern Pacific, G. B. Reeve has been appointed Second Vice-President & General Manager, the change to take effect on Dec. 15.

J. Munday having resigned, the office of Superintendent of Terminals at Portland, Me., has been abolished. Mr. Munday also per-

formed the duties of Agent at Portland, & has been succeeded in the latter position by R. W. Scott, who has been in the Co.'s service for a number of years, & latterly has been Freight Agent at London.

Grand Trunk Western Ry.—At a meeting of directors Nov. 22, the following were elected: President, C. M. Hays; Treasurer, J. H. Muir; Secretary, C. Percy. All other persons in the service of the receivers of the Chicago & Grand Trunk are authorized to act in their respective positions & capacities for the G.T.W.R. until further notice.

Great Northern of Canada.—Revised list of officers:—President, Hon. P. Garneau; Vice-President, Hon. J. Sharples; 2nd Vice-President, Col. J. McNaught, New York; 3rd Vice-President, H. H. Melville, Boston; General Manager, J. G. Scott; General Freight & Passenger Agent, N. J. Fraser; Superintendent, J. Bain; Chief Engineer, E. A. Hoare; Treasurer, E. E. L. King; Secretary, L. G. Scott; Auditor, W. A. Kingland; Accountant, S. S. Oliver. Except where otherwise stated, the address of the officers is Quebec.

Great Northern, (U.S.A.)—L. D. Kitchell has been appointed District Freight & Passenger Agent at Winnipeg, vice R. J. Smith, promoted.

Kootenay Ry. & Navigation Co.—J. F. Stevens, Chief Engineer of the Great Northern (U.S.A.) has also been appointed Chief Engineer of this subsidiary company.

New York & Ottawa.—M. Goodrich, heretofore General Foreman, has been appointed Master Mechanic, with headquarters at Ottawa.

Northern Pacific.—W. G. Pearce, Assistant to the President, with headquarters at Tacoma, Wash., has been appointed General Manager of the Seattle & International.

The position of Master of Construction has been abolished, & G. B. Gliff, who filled it, has been appointed Superintendent.

R. H. Relf has been appointed Assistant Secretary, vice B. W. Corbett, deceased.

Quebec & Lake St. John.—Revised list of officers:—President, F. Ross; Vice-Presidents, G. LeMoine & T. A. Piddington; Secretary & General Manager, J. G. Scott; General Freight & Passenger Agent, A. Hardy; Superintendent, J. Bain; Accountant, S. S. Oliver; Acting Purchasing Agent, J. A. Nicole; Chief Engineer, E. A. Hoare; Master Mechanic, J. Clark; Roadmaster, C. J. Carpenter, Hedleyville. Except where other-

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wise stated, the address of the officers is Quebec.

Rutland & Ogdensburg & Lake Champlain.—J. B. Lucier has been appointed Canadian Passenger Agent, with office at Worcester, Mass.

Shediac & Coast.—A. B. Copp has been appointed Vice-President.

White Pass & Yukon.—J. Francis Lee, heretofore General Agent of the Passenger Department of the C.P.R., at Chicago, has been appointed Traffic Manager of the W.P. & Y., succeeding S. M. Irwin, resigned. Effective Jan. 1, 1901.

Mainly About People.

E. L. Doran, formerly Master Mechanic of the Northern Pacific, died recently.

H. Miller, inventor of the steam & air brake, died at Chappaqua, N.Y., Oct. 22, aged 80.

R. Southam, Manager of the Mail Job Printing Co., Toronto, was married, Oct. 31, to Miss E. Zimmerman.

Jas. & Mrs. Ross, who spent the summer at their shooting box in Scotland, arrived in Montreal late in Oct.

W. Kelly, Jr., General Passenger Agent of the Niagara Gorge R.R., has resigned, & the position has been abolished.

Harry Parry, General Agent of the New York Central R.R. at Buffalo, was married at Syracuse, N.Y., Oct. 25, to Mrs. H. R. Slote.

W. Phillips, formerly Manager of the Niagara Falls Park & River Ry., is acting as Superintendent of the Winnipeg Electric St. Ry.

Vice-President & General Manager Ramsey, of the Wabash Ry., returned to St. Louis late in Oct., after a two months' visit to Europe.

A. J. Kennedy, formerly of Hamilton, Ont., has been appointed Passenger Agent of the Atchison, Topeka & Santa Fe Ry., at Cleveland, Ohio.

H. B. Joy was elected a director of the Chicago & G. T. Ry. for the first time, at the recent annual meeting, taking the place of G. B. Reeve, resigned.

W. R. Baker, Executive Agent of the C.P. R. at Winnipeg, & Mrs. Baker recently celebrated their silver wedding by entertaining a number of friends at dinner.

Senator Forget, President of the R. & O. Navigation Co., & his family have returned to 951 Sherbrooke St., Montreal, after summering at Ste. Anne de Bellevue.

Mrs. C. Percy, of Weredale Park, Montreal, wife of the Treasurer of the G.T.R., has been confined to her house for several weeks by illness, but is recovering.

F. L. Wanklyn, Manager of the Montreal Street Ry., & his family have closed their summer house at Ste. Anne de Bellevue & returned to Montreal for the winter.

Mrs. W. R. MacInnes, wife of the General Freight Agent of the C.P.R. at Winnipeg, has returned there after visiting her mother, Mrs. Cross, Pine Avenue, Montreal.

Among the guests recently entertained by Jas. & Mrs. Ross at their shooting lodge in Scotland, were Granville & Mrs. Cunningham, formerly of Toronto & Montreal.

H. E. Beattie, Agent for the G.T.R. at Ethel, Ont., has received a Fenian raid medal. He served in the 19th Battalion at Phillipsbury, Que., & was in the St. Albans raid affair.

Baroness Von Ketteler, wife of the late German Minister to China, & daughter of President Ledyard, of the Michigan Central, arrived at Detroit Oct. 22, & is staying there with her father.



WILLIAM JACKSON,

1st Vice-Pres., Can. Ticket Agents' Association.

A. W. Mackenzie, son of W. Mackenzie, of Mackenzie, Mann & Co., was married in Toronto, Nov. 13, to Miss Kirkland, daughter of the Toronto Manager of the Bank of Montreal.

D. W. Campbell, Montreal Manager of the Elder-Dempster Steamship Line, was married in Toronto, Nov. 10, to Miss Maud Baird, daughter of H. N. Baird, grain merchant, Toronto.

The Emperor of Germany has conferred upon G. G. Ward, of New York, Vice-President of the Commercial Cable Co., the Order of the Crown of the second class to commemorate the opening of the cable connecting Germany with the U.S.

When Lady Minto visited the exhibition of arts & handicrafts held under the auspices of the Women's Art Association, of Montreal, on Oct. 25, she was received by the two little children of A. D. McTier, General Fuel Agent of the C.P.R., & escorted to the room where the officers of the Association awaited her arrival.

The photograph of Mr. Jackson, C.P.R. Ticket Agent at Clinton, Ont., & 1st Vice-President of the Canadian Ticket Agents' Association.



S. H. PALMER,

Auditor, Canadian Ticket Agents' Association.

tion, not having been received in time it was impossible to publish it in our last issue with those of the other officers of the Association, so it is given on this page. In the absence of President Churchill through illness, Mr. Jackson presided at the recent annual meeting of the Association, & both there & during the Muskoka trip was assiduous in his attentions to the members & guests. A portrait of S. H. Palmer, Auditor of the Association, is also given on this page.

Joseph Simpson, railway folder display agent, who died in Toronto, Nov. 13, aged 68, was born in Ireland. After coming to Canada he was engaged in grocery business in Hamilton, after which he became Travelling Passenger Agent of the Great Western Ry. at Rochester, N.Y., & then entered the service of the Missouri, Kansas & Texas Ry. in a similar capacity. In 1879 he returned to Canada as Travelling Passenger Agent of the Chicago, Burlington & Quincy, & in 1892 took a similar position with the Toledo, St. Louis & Kansas City. In 1894 he started business as a railway folder display agent at Toronto.

J. Francis Lee, who has been appointed Traffic Manager of the White Pass & Yukon Ry., with headquarters at Seattle, Wash., was born Oct. 20, 1852, in London, Eng. He was educated at King's College, London, & Cambridge University, & entered railway service in 1871, since which he has been consecutively, 1871 to 1872, correspondence & financial clerk, general offices London & Northwestern Ry., Eng.; 1873 to 1880, freight car mileage & passenger departments G.T.R.; 1881 to March, 1886, General Agent Freight & Passenger Service, Chicago Rock Island & Pacific Ry.; Mar., 1886, to Aug., 1890, Commercial Agent Freight & Passenger Departments C.P.R., at Chicago; Aug., 1890, to Mar., 1896, District Freight & Passenger Agent C.P.R., at Chicago; Mar., 1896, to Nov., 1900, General Agent Passenger Department C.P.R., at Chicago.

H. J. McKenzie, who is engineer in charge of the Murray Harbor branch of the P.E.I. Ry. now under construction, was born in Pictou County, N.S., in 1860. He studied at the Pictou Academy, & entered the employ of the mechanical department of the I.C.R. in 1873, remaining there until 1878, during which time he took up the study of civil engineering. In 1879 & 1880 he was employed in the machine shops of Harris & Burnside's Locomotive Works, Providence, R.I. In 1881 he took up the active practice of civil engineering & entered the employ of the European & American Ry. Construction Co., doing business in Nova Scotia. He has since been identified either as locating or construction engineer on many of the railway works of importance in the Maritime provinces, & has also been employed as inspector of steel bridge construction for the I.C.R. & Newfoundland railways, also of creosoted material for the Departments of Railways & Public Works. He has also been employed by creosoting companies in the U.S., & is considered an expert in this line.

H. V. Harris, recently appointed General Manager of the Midland Ry. of Nova Scotia, was born in Devonport, Eng., Jan. 16, 1857. He went to Montreal with his parents in Oct., 1867, entered railway service with the G.T.-R. on Feb. 7, 1870, & continued with that Co. in clerical capacities until Sep., 1878. For the following five years he was with the Louisville & Nashville as Chief Clerk to the General Manager, & then for three years Assistant to the General Manager of the Texas & St. Louis, now the St. Louis Southwestern. He served for one year as Purchasing Agent & Assistant Superintendent of the St. Louis, Kansas City & Colorado during its building. Then for three years as Purchasing Agent & Assistant to the General Manager of the Louisville Southern. For two years he was with the

Louisville Terminal, first as Superintendent & later as Receiver. Two years additional were spent as Fuel Agent & Chief Clerk to the General Superintendent of the Chesapeake, Ohio & Southwestern, & for the past five years he has been General Manager of the Breckenridge Cannel Coal Co., & of the Breckenridge Short Line, both mines & railway being now abandoned.

Swiftly as Lord Roberts advanced from Bloemfontein to Pretoria, & great as was the destruction wrought by the Boers, the repair of the railway kept pace with the forward march of the main army. The man who was responsible for this herculean feat, whose foresight & energy helped to make it possible, was the French-Canadian Major Girouard, best known, perhaps, as Director of Egyptian Railways. Of him Walter Kingsley writes in the Daily Express:—"He is a lesser Kitchener, but near to him in organizing power & relentless, unswerving execution of great designs. He is less taciturn than the former Sirdar, & in his amiability lies, it may be, his chief difference from Lord Kitchener." He has made a special study of the question of army transport, & it was a little pamphlet of his, showing how England could be defended from invasion by a military coast railway line, that is said to have first attracted Lord Kitchener's attention to him, and led to his appointment on the Egyptian war staff. "His name is a household word in Capetown," remarks Mr. Kingsley. "His wonderful energy, his contempt for red-tape, his political far-sightedness, his engineering skill, have made him into a kind of mechanical hero, from whom nothing, however wonderful, causes surprise. 'Oh, Girouard will see it through somehow!' closes many an argument on railway transport."—Canadian Gazette.

Richmond Locomotives.—A recent issue of the "Jernbanebladet," a railway journal published in Sweden, reports that the 20 in. & 31 in. x 24 in. two-cylinder compound 10-wheeled freight locomotives, which the Swedish State Railways purchased from the Richmond Locomotive Works during 1899, are so satisfactory that the Railway Administration has decided to adopt the Richmond system of compounding on its lines, & has ordered 29 compound engines of that type to be built in its own shops. This is a great achievement for American locomotives which are gradually working their way into all countries of the world.

RAILWAY DEVELOPMENT.

Projected Lines, Surveys, Construction, Betterments, Etc.

Alaska.—The Arctic Construction Co. has been organized at Skagway, to build the Chilcoot Pass R.R. from Dyea & Skagway north under Chilcoot Pass. A. B. Miller, Seattle, Wash., & H. O. Peterson, Skagway, are trustees. H. Schafer, Skagway, has the subcontract for 10 miles.

Algoma Central.—As stated in previous issues, J. Conmee has a contract for the first 20 miles of the main line from Sault Ste. Marie towards the main line of the C.P.R., Foley Bros. & Co. having a subcontract for the bridging. The Co. is doing its own track-laying, & has completed it for the first 19 miles to a point where a big trestle, taking some 1,250,000 ft. of timber, is being constructed. This structure is expected to be completed by the end of Nov. Starting from the end of the first 20 miles, Fauquier Bros. have a contract for grading 50 miles, & have the first 10 miles of it ready for the steel. The whole of the 50 miles is expected to be completed by the fall of 1901. From the end of the first 70 miles J. Conmee has the contract for the grading & bridging of the whole of the line to the connection with the Michipocoton branch, about 70 miles, & has sublet it to Foley Bros. & Co., who expect to complete it by the fall of 1901. The main line of the C.P.R. will be crossed somewhere between Windermere & Missanabie. It is the intention to extend the line on to James Bay as rapidly as circumstances will warrant, & President Clergue is credited with saying that in 5 years the Co. will be running through fish trains from Hudson's Bay to Chicago. About 30 miles of the main line from the Sault have been completed. (Aug., pg. 236.)

Porter Bros. have the contract for completing the commercial dock at the Sault, which was formerly let to the late J. McGillivray. (May, pg. 143.)

The rumor that the Co. had secured running rights over the C.P.R. bridge across the St. Mary's River probably arose from the fact that the Co. is hauling a quantity of material, which is being excavated at the power canal on the U.S. side, across the bridge, having undertaken to fill the approach to the bridge for the C.P.R. with this material. (Aug., pg. 236.)

The Michipocoton branch is already in operation from Michipocoton harbor to the

Helen iron mine, 12 miles. Another branch is being built from a point on the Michipocoton branch, about 9 miles from Michipocoton Harbor, northerly about 8 miles, to the Josephine iron mine, the contract having been given to J. Conmee, who has sublet it to Foley Bros. & Co. It is the intention to complete this extension before next spring. The point of connection between Michipocoton harbor & the main line has not been decided on, & will depend largely upon other mines which are to be developed, & for which purpose the Michipocoton branch is being built. Probably it will be at or about the point at which the Josephine branch starts from the Michipocoton branch. (Aug., pg. 236.)

The ore docks built by this Co. at its Michipocoton terminus are 750 ft. long, 27 ft. wide at the bottom & 18 ft. at the top, & 64 ft. high, running full length out into the bay parallel to the commercial dock. They support 12 ore pockets, each holding 50 tons. About 1,500,000 ft. of pine & spruce timber have been used in their construction. The commercial dock is 300x40 ft., & on either side vessels with a 20 ft. draught can tie up & be unloaded into the cars, which run from a switch out upon the pier. The railway track runs right alongside the crusher, so that the crushed ore can be loaded in cars ready to be shipped to the docks. About half a mile from the harbor are the yards, which, when finished, will hold 1,000 cars, & will contain repair shops, roundhouse, coal sheds. (Aug., pg. 236.)

It is stated that the Co. is having a permanent waggon road built from Michipocoton harbor to Grasset, on the main line of the C.P.R.

See also under heads "Manitoulin & North Shore Ry.," & "Ontario, Hudson's Bay, & Western Rys."

Bemidji, Minn., to Rainy Lake.—Articles of incorporation have been filed for a company whose object is stated to be to construct a road from Bemidji on the line of the Great Northern Ry. in Beltrami county, Minn., northeast to the International Boundary at Rainy Lake. The incorporators are officials of the Northern Pacific R.R. The Company proposes to build a bridge across the Rainy River into Ontario, & to build & operate a steamship line on Rainy Lake & its tributary waters, including the Lake of the Woods. The proposed line would form a continuation of the Brainerd & Northern Minnesota Ry., which is under Northern Pacific control.

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Cross Creek to Stanley, N.B.—A Stanley despatch says that about one-third of the grading on this line of 6 miles is completed. (Nov. '99, pg. 333.)

Magnetawan River.—At a meeting held recently at Burk's Falls, Ont., it was decided to organize the Magnetawan River Ry. Co., with a capital of \$30,000, to construct a spur line connecting the G.T.R. near Burk's Falls with the head of navigation on the Magnetawan River. The proposed spur, which will start from the G.T.R. about $\frac{1}{2}$ of a mile north of Burk's Falls station, & run to the dock at the Magnetawan River, will be between $1\frac{1}{2}$ & 2 miles long. Construction will be expensive, as there will be considerable rock work & 2 steel bridges, one of 100 ft. over the Magnetawan River, & one of 40 ft. over a branch of that stream. Superintendent Tiffin & Division Freight Agent White, of the G.T.R., attended the meeting, the latter stating that the G.T.R. would operate the spur on the following terms: A charge of \$2.50 per loaded car to be made by the G.T.R. Co., empty cars free, \$1.50 to be allowed the Magnetawan River Ry. Co. to enable it to pay its interest on the stock, combined with the maintenance of the railway. The other \$1 to be paid to the G.T.R. for its switching service, the G.T.R. to have the free use of the spur for its entire service, including both passenger, freight & construction trains, such free freight trains not to include cars transported over the tramway containing freight for furtherance up or down the river. The following officers were elected: President, J. Sharpe, Burk's Falls; Vice-President, H. Knight, Burk's Falls; other directors, R. J. Watson, J. D. Reid, E. H. Smith, Burk's Falls; G. McKnight, Dr. Freeborn, E. A. Morris, E. W. Jenkins, W. McLaughlin, Magnetawan; C. G. Marlatt, Toronto; A. P. Cockburn, Gravenhurst; G.

Alexander, Royston; J. Turner, S. G. Ritter, Ahmic Harbor. In 1894 the Ontario Legislature voted a cash subsidy to the Northern & Pacific Jet. Ry. Co. for the construction of this spur. This subsidy, it is understood, will be available for the M.R.R. Co., but is not considered enough, & a deputation waited on the Ontario Government on Nov. 16, asking for an increase to \$10,000. A deputation of the directors, accompanied by General Assistant Wainwright of the C.P.R., also waited recently on the Acting Minister of Railways at Ottawa, applying for a Dominion subsidy of \$15,000. The portage between Burk's Falls & the head of navigation on the Magnetawan River has proved a serious obstacle to the progress of the country tributary to the river. By the construction of the proposed spur, through connection will be established with the steamers of the Muskoka Navigation Co., which run down the river for some 40 miles to Ahmic Harbor, & an impetus will be given to 10 tributary townships which are already being settled by colonists. The district is a fair farming one, but its principal resources are spruce, hemlock, and tan bark. Several woodenware factories were established, but have found the want of through communication very disadvantageous. As soon as the subsidy questions have been settled, a survey will be made, & it is hoped to have the line completed in time for next summer's traffic.

Manitoulin & North Shore.—The first 12 miles of this line, from Sudbury to the Gertrude mine, is well under way. Location parties are working from the Gertrude mine towards Little Current, Manitoulin Island, & from Little Current north, & further contracts are expected to be let soon. (Aug., pg. 240.)

Ontario, Hudson's Bay & Western Ry.—The Ontario charter for this line, which has been purchased in the interest of the Algoma

Central Ry., was originally granted in 1890, to J. Cozens, R. D. Perry, J. G. Stradley, T. W. Burdick, J. H. Steere, J. A. McDonald, W. McK. Bell, W. McK. Simpson, & John McKay, under the name of the Sault Ste. Marie & Hudson's Bay Ry. Co., with power to construct & operate a standard gauge railway from or near Sault Ste. Marie to the main line of the C.P.R. between Missanabie & Ridout stations, thence to Moose Factory or some other point on James Bay. The capital stock was fixed at \$3,000,000, & the Co. was empowered to issue bonds not exceeding \$25,000 a mile. In 1893 the Legislature extended the time for the commencement of construction for 3 years, from April 7, 1893, & for the completion of the line for 10 years from April 7, 1893. In 1896 a second extension of 3 years in each case was granted. The Company was given power to use electricity or water as motive power instead of steam, if desired, & was also authorized to locate the point of crossing the C.P.R. main line by its line between Grasett & Ridout stations. In 1899 the Legislature again extended the time for the commencement & completion of the railway for further periods of 3 years respectively. It also empowered the Co. to construct & operate a waggon road, with a stage & mail route, from the point of crossing of its line on the main line of the C.P.R. to the navigable waters of Moose river north of the long portage, thence to tide water at or near the mouth of Moose river, & to charge tolls therefor. The name of the company was changed to The Ontario, Hudson's Bay & Western Railways Co., & the company was given power to amalgamate or make traffic arrangements with the Hudson's Bay & Yukon Railways & Navigation Co. At the same session the Legislature voted the Co. a subsidy of \$2,000 a mile & 5,000 acres of land per mile for 240 miles from Missanabie sta-

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tion on the C.P.R. to tide water at the mouth of Moose river. The Co. also obtained a Dominion charter in 1890, particulars of which were given in our Aug. issue, pg. 241. The Algoma Central Ry. Co.'s charter, granted by the Dominion Parliament in 1899, & amended in 1900, empowers it to build from Sault Ste. Marie to a point between Magpie & the Michipicoton rivers, thence to the C.P.R. main line, & southerly to Michipicoton Harbor. The Ontario, Hudson's Bay & Western charter will be used for the extension of the line from the C.P.R. main line to James Bay. See also under head "Algoma Central."

Schomberg & Aurora.—The Dominion Parliament last session passed an act empowering this Co. to build & operate an extension of its railway, westward from Schomberg, Ont., through the townships of King, Tecumseth, Adjala, Mono, Amaranth & Melancthon, to Shelburne, thence through the townships of Melancthon, Proton, Artemesia or Egremont, & Glenelg to Durham, also from the present eastern terminus of the Co.'s railway through the townships of King, Whitchurch, Markham or Uxbridge, Pickering, Whitby & East Whitby to Oshawa. The Co. is also empowered to lease its line to the Metropolitan Ry. Co. The Dominion Parliament last session voted \$12,800 towards building an extension of 4 miles from the easterly terminus to Bond's Lake.

Shediac, N.B., to Shemogue.—The Dominion Parliament last session voted \$121,600 towards building 38 miles of railway from Shediac to Shemogue.

South Shore.—The 10 miles extension of this line from Sorel to Yamaska, Que., has been opened for traffic. It was originally built as the Great Eastern Ry., & passed into the hands of the C.P.R., but has not been operated for years & is practically being rebuilt. The roadbed has been raised some 3 ft., & the culverts & bridges have all been renewed. At Yamaska, where 2 bridges in succession have been carried out by ice, a steel bridge is being erected. It is said the line will be continued this year to St. Francois du Lac, its ultimate destination being Point Levis. (June, pg. 176.)

Strathroy & Western Counties.—The Dominion Parliament last session revoked \$22,400 towards building 7 miles of this line from Caradoc on the C.P.R. to Strathroy.

Thousand Islands.—The G. T. R. having decided to remove its Thousand Islands Jct. station about 2 miles further east, the T.I.R. Co. is extending its line 2 miles to the new station. The line now runs from Gananoque to Thousand Islands Jct, 4.08 miles. The Dominion Parliament last session voted \$6,400 towards the building of this extension. Also for an extension to connect with the Brockville, Westport & Sault Ste. Marie Ry., the Bay of Quinte Ry., the Kingston, Smith's Falls & Ottawa Ry., or the waters of the Rideau Canal, the balance remaining of subsidy granted by 55-56 Vic., chap. 5, not exceeding 9½ miles (revote), \$30,400.

The Co. secured an act at the Dominion Parliament's last session largely increasing its powers in regard to electric power & energy, mining, timber lands, patent rights, &c. On its railway from Gananoque for 15 miles north it is authorized to issue bonds for \$30,000 a mile.

Taku-Atlin Tramway.—Work is reported to have been temporarily suspended owing to litigation between the two companies which are trying to secure the territory.

Western Alberta.—The Dominion Parliament last session passed an act providing that this Co.'s line shall be commenced & 15% of the capital stock expended thereon before Dec. 1, 1902, & shall be completed & in operation before Dec. 1, 1905.

Yukon Railway Charters.—In the House of Commons Railway Committee, towards

the close of last session, the Minister of Railways said that some years ago Parliament granted a charter for the White Pass & Yukon Ry. at a time when the importance of that country was not fully realized. Since then the Government had felt it to be unwise to encourage the construction of any lines which would have their terminals on U.S. soil, or which might ultimately be decided to be U.S. territory. With regard to the application before Parliament this year, the Government's policy was to withhold all new charters until it had been seen whether it was practicable to build an all-Canadian line into that country.

The G.T.R. General Managership.

Sir Rivers Wilson & Jos. Price, President & Vice-President of the G.T.R., arrived in New York Nov. 11 where they were met by the retiring General Manager, C. M. Hays. They stayed in New York for a few days, reaching Montreal Nov. 15. Two days later it was announced that G. B. Reeve, ex-General Traffic Manager of the line, had been selected to succeed Mr. Hays. Mr. Reeve was already on his way from his home at La Mirada, Cal., & reached Montreal Nov. 19, where he held lengthy conferences with Sir Rivers Wilson & Mr. Price, who left for England a few days later, after making a trip over the Central Vermont Ry.

In an interview in Montreal just after Mr. Reeve's appointment was announced, Vice-President Price said: "We regret exceedingly the departure of Mr. Hays, but we feel that an admirable choice has been made in the selection of Mr. Reeve, whose policy will be wise & progressive, in fact a continuation of the splendidly-successful work inaugurated & carried on by Mr. Hays. Apart from Mr. Reeve's undoubted ability & success as a railway man, there is the further advantage in his appointment that in his management he will be surrounded by men of first-class standing in their respective departments. Mr. McGuigan, the General Superintendent, was a most valuable man, & the other chief officials would bring to the support of the new General Manager a combination of a loyal & effective character."

Mr. Price added he was convinced that the G.T.R. was now in a remarkably good condition, seeing the splendid time made by the fast trains between Montreal & western points. Speaking of railways generally on this continent, he observed that, while working expenses during the year had been in excess of former returns, the receipts had not been correspondingly large. He, however, had the utmost faith in the future of the G.T.R., the condition of which had so much improved. Their credit was good & the re-organization of the Chicago & G.T. was especially to be commended amongst financial men. For this section, he said, a project had been approved of whereby the interest account had been very materially reduced, & \$4,500,000 provided for the double tracking & equipment of the line in question from Port Huron to Chicago. Mr. Hays had left for the West in connection with the completion of the re-organization of this part of the road, which would be well advanced, although not completed, during next year. With respect to the report as to the possibility of a financial board being established on this side of the Atlantic in connection with the G.T. management, Mr. Price expressed much surprise that such rumors should have been originated. "There is no foundation whatever for the report," he said; "I have never heard of such a creation being even proposed & I can assure you the matter has never been discussed. We find all the money that is required, & there is no possible necessity for such a board on this side."

When passing through Toronto on his way

to Montreal Mr. Reeve said: "I would be very much surprised & disappointed if any of the staff leave me. The staff which Mr. Hays gathered around him were like one family. When I left seven months ago it was simply one member of the family going away. My place was filled by other officials; & now that I have come back to take Mr. Hay's place I expect to find things as they were when I left. I have been going over a portion of the line looking at the improvements which have been inaugurated since I left, & am very much pleased at the condition of the road."

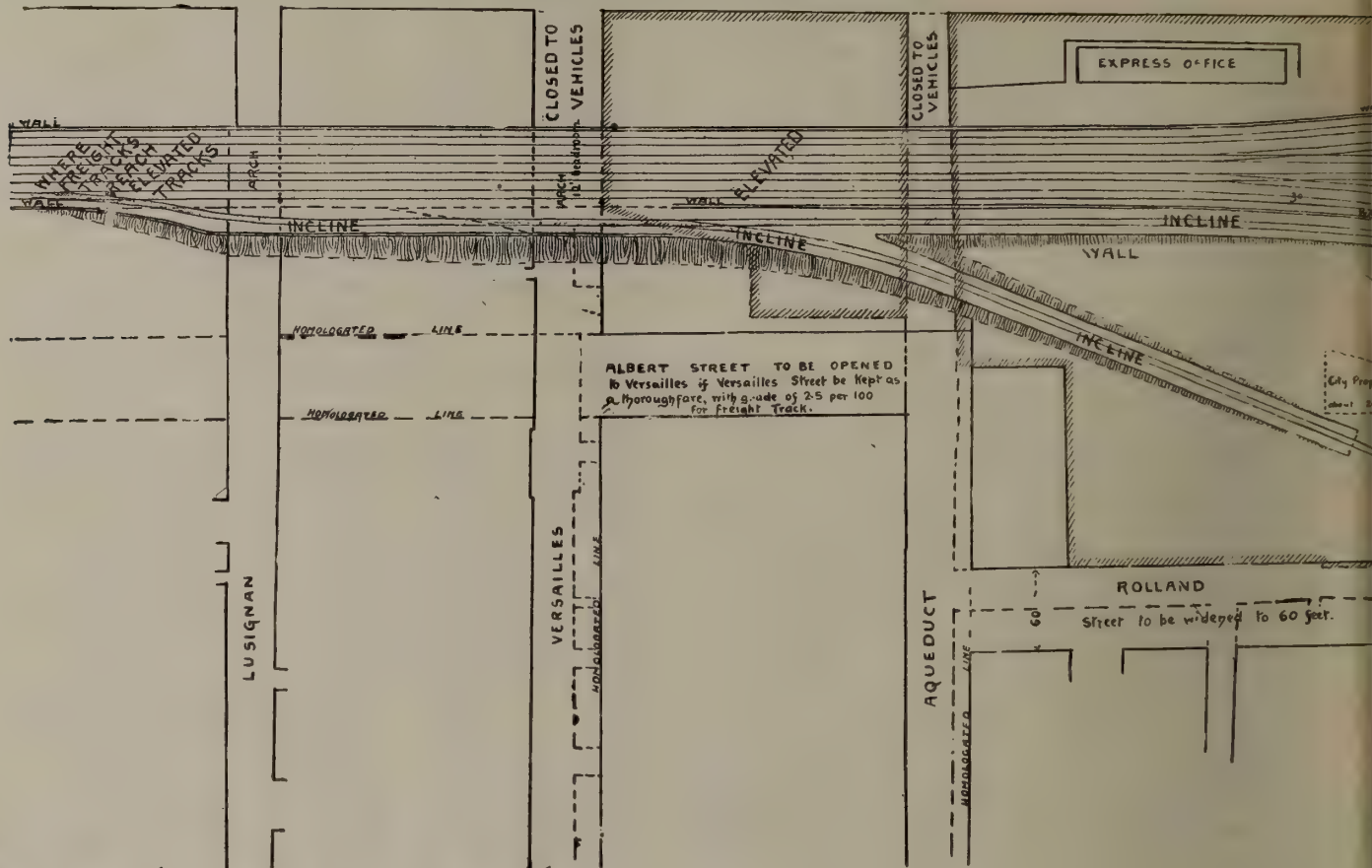
On the return of the President & Vice-President to England it was announced that Mr. Reeve's title would be 2nd Vice-President & General Manager, & that he would succeed Mr. Hays on Dec. 15, instead of at the end of the year as first announced.

George Bell Reeve, whose portrait appears on page 321 of this issue, was born in Surrey, Eng., Oct. 23, 1840. He came to Canada in 1860, from May of which year until April last he was continuously in the service of the G.T.R. He served in the capacity of Freight Clerk at Belleville until 1862, & as telegraph operator from 1862 to 1863, when he was appointed train despatcher, continuing in that position until 1865, when he became relieving agent. In 1866 he was appointed agent at Parkhill & remained there until 1873, when he was appointed Assistant General Freight Agent, with headquarters at Montreal. In 1874 he was removed to Toronto in charge of the Western district, & in 1876 to Sherbrooke in charge of the Eastern district. In 1878 he again made his headquarters at Montreal. In 1881, when the Chicago & G.T. Ry. was completed to Chicago, he was appointed Traffic Manager, & in 1890, when the Cincinnati, Saginaw & Mackinaw Ry. was acquired in the interest of the G.T., its traffic affairs were also placed under Mr. Reeve. In Feb., 1896, he was appointed General Traffic Manager of the G.T.R. system, with headquarters at Montreal, & in 1899, on the acquisition of the Central Vermont Ry. by the G.T., he was given the additional position of General Traffic Manager of that line. Mr. Reeve is a member of the Church of England. He was married in 1865 to Miss Alice Jones, of Warwick. On retiring from the G.T.R. Co.'s service in April last, Mr. Reeve was entertained at dinner by the Board of Trade, & also by the chief officials of the Co. He then went with his family to La Pomelo Ranch, La Mirada, Cal., some views of which appeared in our Sept. issue, with the intention of spending the balance of his life there.

Richelieu & Ontario Navigation Co.

The Co. has contracted for the construction in Toronto of a steel steamer to replace the str. Montreal, on the Co.'s Montreal-Quebec line. She is to be delivered complete in Sorel, Que., in May, 1902.

The preliminary plans & dimensions have been agreed upon, but are to be subject to such revision as fuller consideration may require. The length is to be not less than 340 ft.; width of hull 42 ft.; width over guard 73 ft.; depth of hull (moulded) 15 ft. The engine is to be inclined triple expansion with 3 cylinders & 3 cranks of 3,000 h.p., with feathering paddle wheels & curved steel buckets. The steam is to be from 175 to 200 lbs. pressure, & the consumption of coal not to exceed 1.68 lbs. of coal per indicated horse power per hour. There will be 6 single-ended Scotch boilers, each 11 ft. in diameter & 11½ ft. long, with hot draft. They will discharge into 2 smoke stacks, & will be placed down the centre of the hull with the front ends facing each other & the back ends next the sides of the hull. The regular service speed is to be 17 miles an hour, with ability to make 19 miles when required.



Ref. to Montreal Herald Jan 7, 1901. THE GRAND TRUNK RAILWAY'S HIGH LEVEL TRA

In addition to the usual freight spaces, there will be cabins for 2nd class passengers on the main deck forward with sleeping berths below. The smoking room, barber shop, bar room, &c., will also be on the main deck immediately forward of the main passenger entrance. The pantries, & the dining room, with seating accommodation for 120 persons, will occupy the after portion of the main deck. The upper saloon will be extremely spacious & lofty, & the roof will be built on a new plan, giving a handsomer effect than anything heretofore attempted. The staterooms will be in two tiers, one above the other, but will be built in such a way, & the proportions of the steamer will be made adequate, so that a third tier of staterooms can be added at a future time, increasing the accommodation one-half more. The number of staterooms will at first be not less than 266, including 22 parlor rooms & 8 bath rooms, which is more than the present combined accommodation of the steamers Montreal & Quebec now on the Montreal-Quebec route. The management states that the new steamer will be of the highest class & thoroughly modern in all respects, & that the decorations will be unsurpassed by anything afloat.

Manitoba's Railway Policy.

Speaking in Woodlands recently on the occasion of his re-election, after taking office, Premier Roblin, of Manitoba, said: "The transportation question was of great importance to the farmers. It had been before the people for 20 years. Every time anything was taken off the freight rates on wheat it meant just that much additional to the farmer in the price of his wheat. The people claimed, & he agreed with them, that transportation rates on wheat going out of Manitoba were altogether too high. This deprived the farmers

of their just right. There are three railway corporations doing business in the province: the C.P.R., the powerful corporation of the Dominion; the Northern Pacific, also a strong corporation, though not Canadian; & the Canadian Northern, a strong young company that is extending its lines in such a way as to compete with the other two companies. These railways had not been reducing their freight rate on wheat as they should do. It was claimed that wheat should be carried to the great lakes at a rate not exceeding 10c per 100 lbs., or 6c a bush. To secure such a rate was the goal of his ambition, & he would not rest until he had secured it. How this would be secured he was not in a position to disclose at present. He asked for time to think the matter thoroughly over & to crystalize his thoughts into the proper shape for legislation on the lines mentioned. Its carrying out might involve a large outlay & the placing of a heavy liability on the province. It was therefore a matter which required serious consideration & there should be no rashness in reaching a conclusion on such a momentous subject. If conditions were right he thought the government should build railways where needed, some branch lines must be built in order to give transportation facilities to certain sections. These would have to be constructed by either of these corporations or by the government. If constructed by the government they might for the time being be leased to the companies. No bonus or material aid would be given to any railway that did not give reduced rate to the farmers. He had not as yet had sufficient time to reach any definite conclusion, however."

Mrs. Bibbs (as the train gives a lurch)—My goodness! Are we off the track?

Mr. Bibbs—No, we seem to be running all right. Guess we went round the curve. We must be at Chicago.

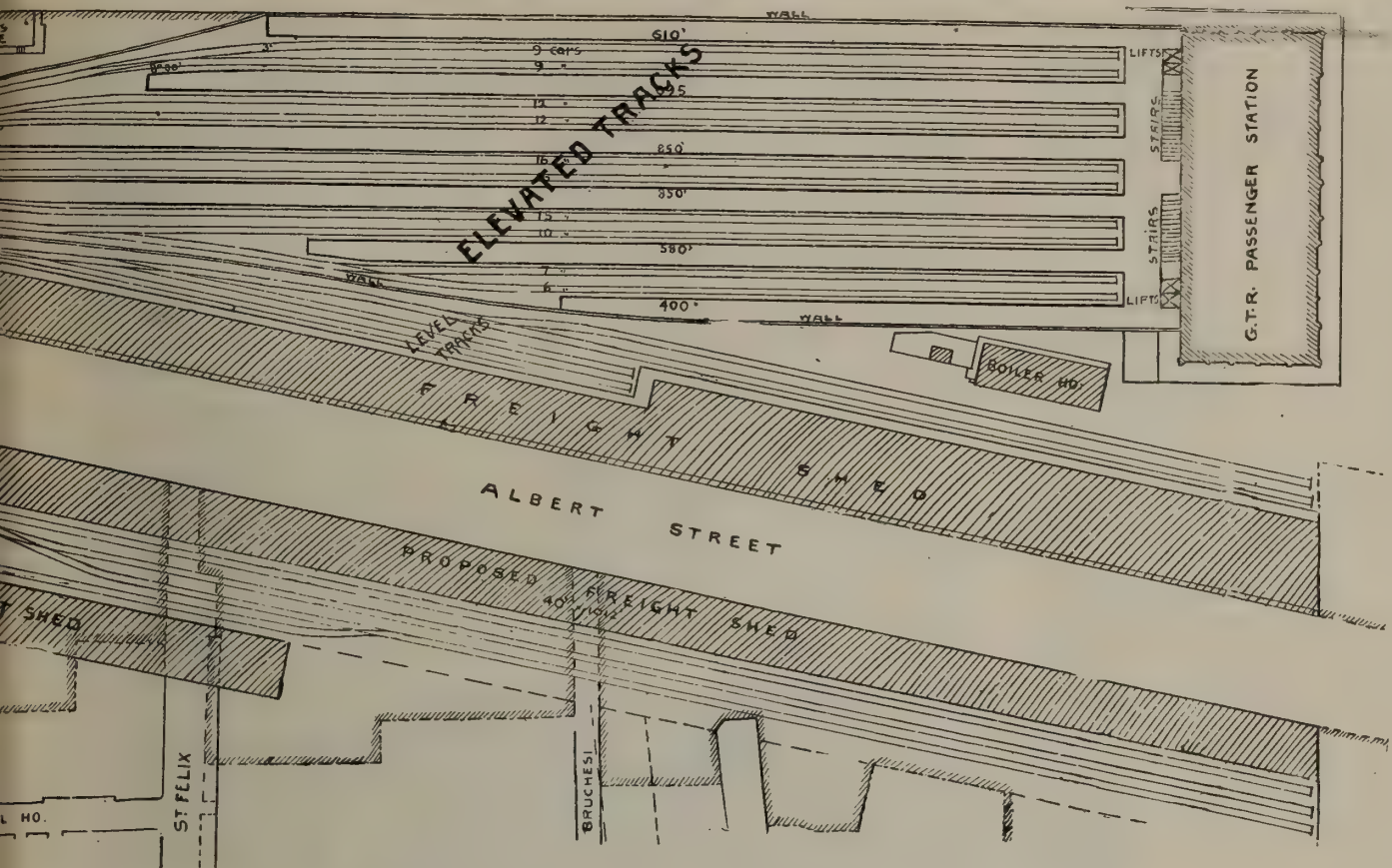
"But Chicago was a thousand miles off when we started, & we've only been riding an hour."

"Can't help it. I looked at the map of this railroad, & there ain't a curve in it till it gets to Chicago. Hunt up y'r things."

Government Control of Railways in Canada.

A correspondent of the London, Eng., Economist wrote from Winnipeg recently as follows: In the U.S. populism occupies itself chiefly with the money question. The green-back issues during the Civil War left the impression on the farmer's mind that money can be created by government fiat, & that impression still lingers. Ten years ago some farmers' organizations advocated the purchase by the Federal Government of the Union Pacific & Central Pacific Railways, which were indebted to it; it was supposed that if these lines were "run by the people for the people," & extended from ocean to ocean, the effect would be to lower the rates on other trunk lines. But the notion was soon abandoned & the United States farmer is now content with such control of railways as is afforded by his state commissions & by the Interstate Commerce Commission, at Washington.

Here in Canada the money question cuts no sort of figure. When France owned the colony, issues of paper money, which the treasury were unable to redeem, inflicted such loss upon the settlers that long after, when banks came to be established under British rule, it was difficult to persuade them to accept bank notes—they would take nothing but the argent sonant of gold or silver. Our banking system is a good one; circulation adjusts itself automatically to the fluctuating requirements of trade & the noteholder is thoroughly secured. Hence, while an agita-



BONAVENTURE STATION, MONTREAL. (SEE PAGE 327.)

tor now & then demands that all the paper money in the country should be issued by Government on the security of public resources, whatever that may be, the farmers as a body are satisfied with things as they are. In the recent Dominion general election campaign, however, Manitoba farmers advocated government ownership of railroads. It was not suggested that the existing lines should be purchased—Canada could not afford that—but that henceforth all new lines should be built & operated by government. The main ground on which this demand was based was that although the Dominion Government, the various Provincial governments, & the municipalities have voted, all told, about \$220,000,000 to railroads, without counting land grants, the public have no real control except in the case of the Intercolonial, which was built & is operated by the Dominion Government.

As a matter of fact, the Railway Committee of the Privy Council at Ottawa exercises a tolerably efficient control over all the private railways. It hears complaints regarding rates, & undue preferences, & has to do with running powers, expropriations, & crossings, traffic arrangements, & the like; no company may levy rates until they have been approved by it; any one with a grievance may submit it by letter, that is, is not obliged to appear at Ottawa in person or by counsel; & if he fails to make out his case, the costs are paid by the Government, provided he has acted in good faith. There is no doubt, I think, that the Committee serves the public as well as the Interstate Commission at Washington, whose usefulness has been impaired by recent decisions of the courts.

All things considered, too, the Manitoba farmer is well supplied with railways, the mileage per thousand of the population being greater than in any of the newer states south of the International Boundary; whilst rates

on the Canadian Pacific, local as well as through, are lower than rates in Dakota or Minnesota. He is asking for Government ownership principally because he thinks it would be the means of reducing rates at the expense of the taxpayer at large.

But the taxpayer in the older provinces is not disposed to rise to that height of altruism; his experience of Government ownership in the case of the Intercolonial having been singularly discouraging. To state the facts very briefly, the Government system, including the Prince Edward Island Ry., is 1,300 miles long. A roundabout route by the Baie de Chaleur was chosen ostensibly to withdraw the line as far as possible from the U.S. frontier, in reality to enable the Government of the day to obtain the support of northern New Brunswick for Confederation. There was a good deal of corruption in connection with the contracts, & ever since the road was opened it has been run, more or less openly, as a party machine. Politics have corrupted the management, & the management in turn has corrupted politics.

No matter whether Liberals or Conservatives are in power, the cost of operating is far higher than on other lines. Stations were planted thick to satisfy persons who had land to sell & create other patronage; buildings of various kinds, like the huge elevator at Halifax, have been erected to carry bye-elections or furnish contracts to political allies; & branch lines constructed with an eye to the effect on the constituencies traversed. Rebates are given to friends, or, what comes to the same, the friend gets the benefit of under-billing—he is allowed to place, say, 35,000 lbs. of freight in a car & be charged for only 24,000 lbs., whereas the political opponent is made to pay for the actual quantity shipped. When a new cabinet or a new Minister of Railways comes in, an effort is made to banish abuses of this sort, but the party friends are generally

strong enough to block reform. "Do you mean to tell us," they ask, "that we who have been in the wilderness so long are not to profit by the perquisites which the other side enjoyed?"

The number of employees is excessive, but as they are voters & usually active party workers, it is not easy for the most resolute of Ministers to get rid of them, even when they are known to be dishonest. Much of the time of the members who support the Government is occupied with matters of railway patronage or in pressing claims for damages, etc., not in every instance genuine. Rates are lower as a rule than on other lines, because the people along the route insist on low rates, knowing that the deficit will have to be shouldered not by themselves but by the general treasury. To reduce the deficit the Minister is tempted to charge to capital items which ought to be charged against revenue; the opposition for the time being protests, but does the same thing when its turn of office comes. The Chief Engineer has cited an instance where a farmer, whose claim was nursed by politicians, demanded \$60,000 for \$10 worth of sand taken from his land. The cost of building a branch, 14 miles long, from St. Charles to Levis, opposite Quebec, was estimated at \$750,000, which included the land expropriations; the actual cost to date amounts to nearly \$2,000,000.

The results of Government ownership in Europe or Australia have no bearing, therefore, upon the subject here. We must judge it by its results in Canada, which are so unsatisfactory that many of the best men in both parties would like to see the Intercolonial leased to a company, in order that politics might be purged of so fruitful a source of evil.

Moreover, mixed ownership is, as usual, beginning to work injustice, private lines having to compete with the Government railways that are not expected to earn dividends,

or even to make both ends meet. It is not at all likely, then, that the Dominion Government will undertake to build & operate lines in the Northwest. The Government of Manitoba is committed to provincial ownership, but cannot very well build a trunk line to Lake Superior, whether to Fort William or to Duluth; whilst province-owned branches, serving as mere feeders of the Canadian Pacific or the Northern Pacific, could not, of course, reduce rates to Lake Superior or the seaboard.

The Southern Pacific Presidency.

A U.S. contemporary says: The Southern Pacific Co. has made a great acquisition & the G.T.R. has suffered a corresponding loss in the decision which transforms the General Manager of the latter into the President of the S.P. system. C. M. Hays is a gratifying example of what a young man with ability & a tremendous capacity for work can accomplish in this country, without capital, political influences or favoritism. For 4 years he was an office clerk; for nearly to years more he was general manager's secretary—a splendid school for the all-round railway man; for the next 9 months he was assistant general manager, & then he reached the goal of most railway men's ambition by becoming general manager at the early age of 33. For 8½ years the Wabash was able to retain him in that position, until nearly 5 years ago, when he accepted the larger & more difficult work of operating the G.T.R. His success in rehabilitating that great property has been warmly acknowledged at the half-yearly meetings of the English stockholders—gentlemen who are generally less ready to praise than to blame—and the announcement that the Co. is to lose his services will cause general

regret as well as surprise. The presidency of a vast corporation such as the S.P., with its nearly 10,000 miles of railway lines, directly & indirectly controlled, operating thousands of miles of steamer lines, reaching to the South Sea & the Orient, & numbering its employees by tens of thousands, is a position of power & usefulness that may well satisfy the ambition of any man, & the man who has attained this was a clerk 16 years ago. In addition to the rapidity of his rise two facts are noticeable in examining the dates of Mr. Hays' railway career—that his official service thus far has been with two companies only & that from his entry into railway work as a boy of 17 he has never been for a day out of employment, stepping from one position to another that was higher by a continuous progress. Such a record is rare in a profession so full of vicissitudes as that of the railway official, & it is proof of extraordinary & varied abilities.

The accession of Mr. Hays to the presidency, with his office & residence in San Francisco, will, it is to be believed, begin a new era in respect to the attitude of the California public toward the S.P. Co. & its management. For 30 years & more this Co. & its predecessors have labored under the open hostility or the secret suspicion of a large part, if not all, of the people of the Pacific Coast, the chief beneficiaries of the pioneer transcontinental lines. The Central Pacific & its outgrowths were originated & controlled by four men, & it was easy to start the cry of monopoly, tyranny, despotism against those who ruled the sole & indispensable means of transportation in a vast territory. The forceful men who dared to stake their all on the venture of the first railway across the desert & the mountains seemed to many arrogant & overbearing in exercising their

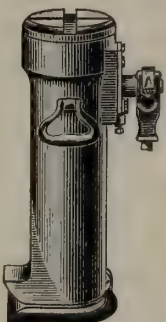
great powers. The great cost of construction in those experimental days, the sparseness of population & traffic & the expensiveness of operation on many parts of the new roads compelled the builders to fix high rates for transportation, & when offended applicants for lower charges began to agitate for legislation against the great monopoly, the railway company had to use its political influence also, & so the S.P. became in time the object of warfare of extraordinary bitterness & persistence. Conditions have changed of late years & the Co. & the majority of the people now have a better understanding of each other, but there is still a considerable faction, represented by several of the strong papers of San Francisco, whose voice is ever raised against the S.P. in regard to which they continue to believe that whatever is, is wrong.

It is time that this profitless war should cease. The four men whose achievements evoked it—Stanford, Crocker, Hopkins, Huntington—have passed from the scenes of their mighty labors, of which California is in the prosperous enjoyment, their millions have been dispersed through countless channels of industry & usefulness, the ownership of the vast railway system which they originated is distributed among tens of thousands of holders in many states & many lands. San Francisco has developed from a provincial town, jealous & fearful, into a strong & growing metropolis, another great railway has crossed the continent & built a new highway for commerce to & from the Golden Gate, & the days of monopoly in transportation on the Pacific Coast are forever ended. The S.P. is under a new régime; its President—born since the Central Pacific came into being—succeeds to the chair of Huntington & Stanford unhampered by the prejudices, misunderstandings & mistakes which have character-

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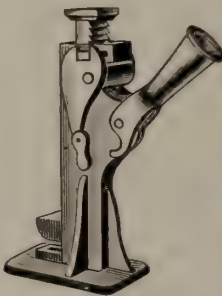
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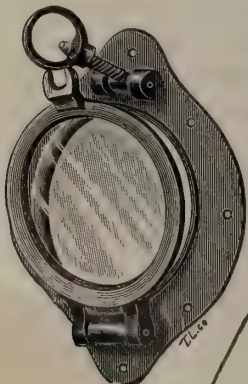
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The Railway Employee as a Man.

By B. D. Caldwell, Traffic Manager, Delaware, Lackawanna & Western R.R.

In this paper I will present for consideration the extensive & promising field for the development of character which exists among that large class of our citizens known as "railway men." There is an impression in some directions that the standards of character among the rank and file of railway men, because of the nature of their work & their environment, are not as high as those in the general business world, & there may be some among the railway fraternity who feel that the nature of their work is not conducive to the development of character, as is the case with many other lines of general business.

There was doubtless a time in the pioneer period of railway construction & operation when the railways did not enter so fully into the life & plans of our people, & make up so largely the commerce of our nation as they do to-day, when—because of limitations created by exposure & exclusion from the cultivating influences of society—there were lower standards of intelligence, of habit & of discipline than now prevail, such as to justify this conception; but to-day, in this country, when railway construction & operation have become almost if not altogether, the leading material factors in our civilization & progress; when the railways constitute nearly one-fifth of the total wealth of the country; when their employes, including their dependents, embrace nearly one-fifth of the population; when discipline like that of an army is required for the safety of life & property—in the enforcement of which the employe is equally benefited—who will but admit that no standard of character is too high; or who, among those who are conversant with the magnificent service rendered by our railways, unequalled anywhere on the globe, will but concede that railway employes, if they are to be equal to their responsibilities & opportunities, must measure up to the best & highest standards of intelligence, activity, fidelity, & all of those traits which constitute strong, self-reliant & forceful manhood.

Great interests & heavy responsibilities everywhere call for men of capacity & reliability, & surely in the railway world—justly so called—in finance, construction & maintenance, vast in scope & value, almost beyond comprehension; in traffic, intricate & perplexing, the structure upon which is builded the country's commerce; in operation, involving the safe, speedy & regular transportation of a nation's people & property—there exists a demand for the best qualities of mind, muscle & heart, that man is capable of; &

with all the possibilities of his profession—and it may properly be so termed—no railway employe can be said to lack for incentive to make the best of himself.

Perhaps there is no one before the public to-day who stands more firmly for this "strenuous life" than Theodore Roosevelt, & what he says is eagerly listened to, because the public believes that what he says is but an expression of what he does or tries to do. In a recent issue of the "Outlook," in an article "Promise & Performance," dealing largely with the relation of politics to good government, Governor Roosevelt, in his usual forceful way, said:—"A man is worthless unless he have in him a lofty devotion to an ideal, & he is worthless also unless he strives to realize this ideal by practical methods. He must promise, both to himself & to others, only what he can perform; but what really can be performed he must promise, & such promise he must at all hazards make good."

The history of mankind demonstrates the need of some aim or ideal as an incentive to progress. Indeed, the very nature of man is such that every intelligent being feels the impelling force of this principle, whether he realizes fully its meaning or not. I have dwelt somewhat upon these features of opportunity & possibility, because so large a pro-

vain. It may, we think, be correctly said that level-headedness is the essence of business intelligence; but this involves the acquirement of knowledge through all available channels & the right use of it.

An essential element of all true character is conscientiousness. Sincerity is the foundation of all right character. Used in its best sense it means integrity. That was a noble sentiment Charles Dickens uttered when he said:—"There is nothing so strong or safe in any emergency of life as the simple truth;" & so there is nothing so winning & so binding in our relations with our fellowmen as sincerity. Deceit & insincerity are the costliest implements employed in human society, because they destroy confidence, lacking which, there is no security of any structure, whether of life or property.

On the other hand, conscientiousness inspires trust. It creates courage. It impels loyalty. Mr. Depew, in his memorial of Mr. Vanderbilt, said:—"He was distinguished for an intense conscientiousness. Every matter which came to him was first subjected to the crucible of its being right or wrong. Once satisfied that the course he was to pursue was the right one, no difficulties, no dangers, no obstacles deterred him. Under such circumstances he was the most courageous of men. He simply took no heed of dangers or perils, but moved straight forward to the purpose that he believed he ought to accomplish."

Is it too much to ask that this principle shall govern any railway man, be he official or employe, in his relation to his fellows, whether it be his employer, his employe, or the public with whom he deals? We have seen that it may dominate the highest official, & we believe it may, with equal propriety, be the ideal of the humblest employe.

The old principle handed down by Benjamin Franklin, that "honesty is the best policy," finds fruitful field in railway work, as it is hard to conceive of a business where there is greater opportunity for opposite practices. Honesty, however, does not find its fulfilment merely in dollars and cents; it means con-

scientiousness as to time, service, method & duty, absent or present.

Another necessary element is energy, or industry. Prizes must be striven for. Obstacles must be overcome. Goethe said:—"Energy will do anything that can be done in this world, & no talents, no circumstances, no opportunities will make a man without it."

Earnest men are men of might; they win where others fail; they are practically irresistible. Failure is a word they do not know. Power comes from persistent & repeated effort. There is no such word as discouragement in the vocabulary of an earnest man. His motto should be, "Difficulties are made to be overcome."

There are too many in the world looking for easy places. The easiest way is not the best! A man might as well, so far as the statement of character is concerned, look for a place of burial. Such men will never "carry a message to Garcia." They will, on the other hand, find themselves behind in the race, side-tracked while others go by. Such men make no contribution to progress; on the contrary, they clog its wheels, & instead of riding in chariots, well to the front, through life's way, they either drag along, hardly able to carry their own burden, or serve as a weight to some stronger character.

A very effective element in character is



THE STEAMER MONTICELLO, SAILING BETWEEN ST. JOHN, N.B., AND HALIFAX, WRECKED NEAR YARMOUTH, NOV. 10, WITH A LOSS OF 33 LIVES.

portion of railway employes occupy what to many of them seem humble positions, so much so, in the minds of many, as to preclude their attainment to any special position or influence. To all such should come the inspiring words of Dr. John Hall:—"The best way for a man to get out of a lowly position is to be conspicuously effective in it." D'Israeli said:—"The secret of success in life is for a man to be ready for his opportunity when it comes." Browning believes that all actual heroes are essentially men, & all men possible heroes.

Let us as railway employes consider briefly some of the elements which enter into such a character; & as this paper is understood to come under the head of the educational work of the Y.M.C.A., it may be well to speak first of intelligence.

Intelligence is necessary to the successful performance of any important work. There are some who think that there is much railway work which requires muscle only; in this they are mistaken, as there is no business, taking it as a whole, wherein intelligence is more essential. Intelligence is not simply book learning, it consists of an ability to distinguish between right & wrong; to comprehend the duty of the hour, & to find a way for its performance. It means discipline of mind & body, without which all education is

"friendliness." It is well-nigh essential as an element of success in the railway service. It represents politeness, courtesy, cordiality, good-will, kindness & consideration. I heard an experienced traveller say but recently that if he was the manager of a railway he would make it his first duty to require politeness & courtesy in all dealings with the public, & would make a penalty of dismissal without recourse for any act of dishonesty or impoliteness to a patron. Railway agents & trainmen know what this means, & appreciate what a world of opportunity constantly exists for the manifestation of this principle, & how often it wins in the face of other adverse conditions, which without it would call for dissatisfaction & complaint.

What the rank & file of railway men want from their superiors is not to be dealt with leniently & to allow slipshod & dilatory work, but the enforcement of the strictest discipline, which is of itself a guarantee of safety to the life of the employe, together with fairness, justice, courtesy, consideration for & recognition of merit; & these must be shown by those in authority if the results are to be satisfactory.

I should feel unworthy of your hearing if I should close this paper without recording my conviction that the foundation & underlying principle of all true character is in conforming in disposition & conduct, to the divine standard of right. My observation & belief is that the only sure foundation for doing right in relation to our fellowmen is that of right-doing in the sight of the Almighty. If a man is seeking to walk rightly in His sight he is not likely to go very far wrong in his relations with his fellowmen, & it is in recognition of this principle that the Railway Y.M.C. Associations were formed, to minister to the needs of & exercise the influence upon railway employes; & when business men tell me, as they frequently have, "You have a fine class of trainmen on your line—many of them are earnest Christian men," I cannot but feel that the credit for that result is chiefly due to our railway associations & to the work of their noble secretaries & earnest bands of devoted Christian railway men, who have demonstrated that they have lofty ideals & are by practical methods endeavoring to live up to them.

The highest attainment any man can reach

is to be able to do that which is right, & to perform to the best of his ability, at all times & in all places, what he understands to be his duty. There are, however, so many adverse influences calculated to prevent men from measuring up their best selves, that it is absolutely necessary, if they are to be successful, that they seek for & place themselves under such influences & surroundings as will strengthen them in their good resolves. For this reason influences & surroundings, such as are to be found in membership of a Y.M.C.A., are not only valuable but essential to railway employes—especially to those whose occupation is such that a considerable portion of their time is spent away from home.

Be a man's religion, as to denomination or sect, what it may, if as inculcated by the principles of our Association, he recognizes the Almighty as his guide of faith & conduct, & with this sure foundation he seeks to make the most of his opportunities & abilities, he will, he must, attain a character which will stand the test of prosperity or adversity, health or illness, & from a worldly standpoint, of success or failure; & he will have influences working in his behalf, silently, but continually, which will carry him over all of life's places.

THE BARRETT TRACK JACK.

Recommended as a standard by the

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These Jacks are made with Malleable Iron Frames, Steel Pawls, Machinery Steel Bearings and Pivots, forged Steel Rack. The wearing parts are removable and readily renewable at slight expense. The rectangular base gives great lifting strength and fits into close quarters better than other shaped stands. Adaptable to either high or low set loads.

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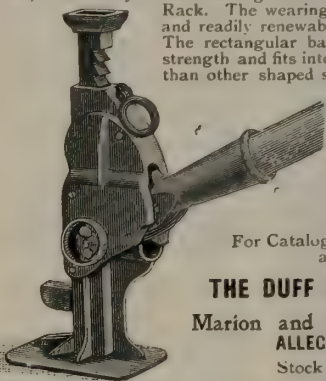
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THE WONDERFUL MEDICINE

They relieve Distress from Dyspepsia, Indigestion and Too Hearty Eating: are a perfect remedy for Dizziness, Nausea, Drowsiness, Bad Taste in the Mouth, Coated Tongue, Pain in the Side, TORPID LIVER.

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A case of bad health that R-I-P-A-N-S will not benefit. R-I-P-A-N-S, 10 for 5 cents, or 12 packets for 48 cents, may be had of all druggists who are willing to sell a low-priced medicine at a moderate profit. They banish pain and prolong life. One gives relief. Accept no substitute.

Note the word R-I-P-A-N-S on the packet. Send 5 cents to Ripans Chemical Co., No. 10 Spruce St., New York, for 10 samples and 1,000 testimonials.

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This is the crowning inspiration of human life, with all its uncertainties, its weaknesses, its disabilities, its seeming discrepancies, that a man cannot fail of his truest & best good if he have but God with him & but do his best. Nowhere, perhaps, do we find a better example of such a character than in the life of the late Cornelius Vanderbilt, as expressed in the words of his pastor, the Rev. D. H. Greer: "Mr. Vanderbilt, as we all know, was a man of many & varied interests, & yet I think I am stating the exact truth when I say that there was one interest which pervaded & dominated all his other interests, & that was his interest in religion. He was a business man, he was a railway man, he was a rich man, & in these several aspects & relations of his life he was well & widely known. But above all these, or rather in all these, he was a Christian man. That was the distinctive trait & characteristic of him for which he was respected most while he was

General Passenger Agents' Meeting.

The annual meeting of the American Association of General Passenger & Ticket Agents was held at Buffalo, Oct. 16 & 17. The principal address was delivered by J. R. Wood, of the Pennsylvania. H. C. Townsend, of the Missouri Pacific, was elected President for the ensuing year, & it was voted that the next meeting be held at Asheville, N.C.

President G. H. Daniels, in opening the first session, made a happy address, alluding particularly to the good work which general passenger agents are doing in advertising American railroads throughout the world. He was presented with a gavel made of wood from Palestine, the givers being H. Gaze & Sons, the excursion agents.

The Committee on Anti-Scalping Legislation made a report recounting several successful prosecutions of ticket forgers during the past year. The committee recommends

E. Davis, G.T.R.; H. G. Elliott, G.T.R.; B. W. Folger, Thousand Islands Steamboat Co.; J. Foy, Niagara Navigation Co.; H. H. Gildersleeve, Lake Ontario & Bay of Quinte Steamboat Co.; A. Hardy, Quebec & Lake St. John Ry.; A. C. Lytle, Orford Mountain Ry.; G. F. Marsh, Huntsville & Lake of Bays Route; C. E. E. Ussher, C.P.R.; J. H. Walsh, Quebec Central Ry.

During the meeting the following from Canada were elected members:—A. L. Baker, Tilsonburg, Lake Erie & Pacific Ry.; T. Henry, Richelieu & Ontario Navigation Co.; H. W. Wilson, Lake Ontario & Bay of Quinte Steamboat Co.

C. E. E. Ussher was elected a member of the Executive Committee.

London & Port Stanley Ry.—On Nov. 8 President Walker & General Manager Woollett, of the Lake Erie & Detroit River Ry.,

Net to be. A. L. of Trade, Vancouver Jan 7, 1901.



CANADIAN PACIFIC RAILWAY STATION, VANCOUVER, B. C.

living, & by which he is remembered best now that he is gone, & will be remembered always. Christianity with him was something else than a creed & something more than a form; it was a life to be lived, & he lived it, or tried at least to live it, & to cause it to appear in every position he occupied, & in every office he filled, in every social duty or task which he undertook to discharge. Of him I think it was literally true that in all the relations of life, no matter what they were, social or commercial, he carried himself—and was not ashamed of it—as a Christian, & sought first the kingdom of righteousness & truth."

Locomotive Tonnage Rating.—The American Railway Engineering & Maintenance of Way Association has issued a bulletin on locomotive tonnage rating on the Southern Pacific Co.'s Pacific System. It can be obtained from the Secretary, L. C. Fritch, 1562 Monadnock Block, Chicago, Ill.

the continuance of effort on the part of the railroads to secure anti-scalping legislation by Congress. The meeting again discussed the question of safety paper for joint tickets, & the date on which all roads should use the safety paper prescribed by the Association was changed to Jan., 1902. Over 78% of the railways in the Association are already using this paper or have determined to use it.

The proposition to have an insurance department in the Association was laid over until next year, as were the questions of selling orders for tickets, the discontinuance of brass baggage checks, the issuance of rate sheets on May 1 & Nov. 1, standard method of printing time limits in round trip tickets, & several other subjects.

The following members were present from Canada:—F. F. Backus, Toronto, Hamilton & Buffalo Ry.; C. Cameron, Northern Navigation Co. of Ontario; A. P. Cockburn, Muskoka & Georgian Bay Navigation Co.; W.

met a committee of the London city council, representing the board of the L. & P. S. R. respecting the renewal of the lease of that line by the L. E. & D. R. R. After considerable discussion the representatives of the L. E. & D. R. R. revised the Co.'s offer by offering to pay \$17,500 a year for the balance of the present lease for 13 years from Jan. 1, 1901, in lieu of the present rental of \$10,000 a year, with interest on the bridges over the ravines near St. Thomas, & 10% on the gross earnings over \$80,000 a year. After the 13 years the Co. to pay \$20,000 a year for 20 years. (Oct., pg. 312.)

The design of the medals awarded to the C. P. R. & G. T. R. Companies at the Paris Exposition has reached this country. The obverse side of the disk bears the inscription: "Republique Francaise." The reverse shows allegorical figures, a view of the principal structures, the inscription being "Exposition Universelle Internationale, 1900."

A Reminiscent Ode.

Canadian Ticket Agents' Association meeting, Hamilton & Muskoka, Oct. 9 to 12, 1900.

My dear Old Tom! regret doth strong possess me,
That fate decreed your absence from the meeting
Where sages wisely talk of ticket matters,
And yearly join in warm and social greetings.

Beneath the snow-capped peak of Teetzel's mountain,
The wigwams of the braves were soon erected,
While October's dreamy face and smile expansive
Beamed on privilege and kindness unexpected.

Each want of inner man and maid looked after,
The landscape, bay and harbor then were seen,
After which, strains of music most enchanting
Sent the ladies to repose and happy dreams.

Our mundane sphere whirls round again—'tis morning;
The pipe of peace, the jest and hearty laughter
All combined to shorten time allowed for business,
Thank you, no! soda straight I'll leave till after.

Ere long the delegation and their sweethearts,
Pictured where the whitecaps splashed and curled;
Assembled for the banquet and reception
'Neath Union Jack and Stars and Stripes unfurled.

Perchance my lady fair who sat in state there,
And favored cavalier with glance and smile,
Had influence and added to the vigor
Of speech and song rendered in good style.

The new and handsome train at our disposal
Offered comforts and a luxury or two,
By the time the party lunched on Lake Muskoka
Maybe those who missed the cars were feeling blue.

At Monteith's we had a scramble and some Rugby
In an effort to get booked throughout the night,
The way that old and young sailed into victuals,
You bet, my jolly chap, it was a sight.

They sang with lusty lungs, "They're decent fellows,"
When the trio got the sunshade, cane and grip.
And Hie'land Mary (for the moment fancy called her)
The light fantastic toe did gaily trip.

In the morning every soul was gently wakened
By six thumps with a tough and healthy stick,
Through fog, cried the king who ruled that city,
"I'd like to know for why you trowed dat brick."

'Mid vocal serenade from Reeve and people,
We sailed away with music from the band;
You should have seen the "hoot mon" in his bonnet,
Oh! the silent speaker's antics, they were grand.

Homeward bound, bright sunshine gave us glimpses
Of scenery to inspire a painter's dream;
E'en now methinks I see the Port and Sandfield
In a setting—lake and hills and verdure green.

Then here's to all our gracious entertainers,
Their goodness on our jaunt we'll oft recall,
Let's drink their health and clasp each hand while singing
"Auld Lang Syne," and next year at Montreal.

J. M. COPELAND.

A Fast Freight Train.—The C.P.R. by running a train of 22 cars of beef for export, from Detroit to Newport, 660 miles, in 32 hours, claims to have made a record for fast freights. The time was 12½ hours under the schedule.

Canadian Roadmasters' Association. In the report of the discussion on the creeping of rails, on pg. 347 of this issue, J. Drinkwater is reported to have said:—"Have you noticed, Mr. Holloway, where the track creeps one way & the other the joint ties travel with the rail?" It should have been reported, "Have you noticed, Mr. Holloway, where the track creeps more on one side than the other, the joint ties travel with the rail?"

Fast Running on the C.P.R.—A fast run was made Nov. 12 with a special train carrying Lord Strathcona from Montreal to Ottawa. It left Windsor St. station at 8.37 a.m. & reached Ottawa at 10.27 a.m., a distance of 111.4 miles, in 110 minutes. At least 10 minutes should be deducted from this, however, for slow running through Windsor St. station yard at Montreal & the Central station yard at Ottawa, & for reducing speed at four interlocked grade crossings, & at St. Annes & Vaudreuil, to receive & deliver electric train staff. The train, consisting of Atlantic type locomotive 210, with Driver J. Smith at the throttle, one coach & the private car Metapedia, was in charge of Conductor A. Chapman.



Richmond Locomotive and Machine Works,

RICHMOND, VIRGINIA, U.S.A.

BUILDERS OF

Simple and Compound

LOCOMOTIVES

Adapted to every variety of service.

MANITOBA

The Government Crop Bulletin issued Dec. 12th, 1899, gives the following statistics for the year:

CROPS.

ACRES.	AVERAGE YIELD.	TOTAL.
Wheat....1,629,995	17.13 bus.	27,922,230 bus.
Oats.....575,136	38.80 "	22,318,378 "
Barley....182,912	29.4 "	5,379,156 "
Potatoes..19,151	168.5 "	3,226,395 "

STOCK.

Beef Cattle exported during the year	12,000
Stockers exported.....	35,000
Total value dairy products.....	\$470,539 09

10,500 FARM LABORERS

Came from Eastern Canada to assist in the harvest fields of Manitoba in 1899—and the demand was not fully satisfied.

MANITOBA FARMERS ARE PROSPEROUS.

Farmers erected, last year, farm buildings valued at one and one-half million dollars.

MANITOBA LANDS—For sale by the Provincial Government. Over 1,600,000 acres of choice land in all parts of the Province are now offered at from \$2.00 to \$5.00 per acre. Payments extend over eight years. **Special Attention** is directed to 500,000 acres along the line of the Manitoba and Northwestern Railway at \$3.00 and \$3.50 per acre.

FREE HOMESTEADS are still available in many parts of the Province.

For full information, maps, etc., **FREE**, address J. A. DAVIDSON, Minister of Agriculture and Immigration, Winnipeg, Manitoba.
Or JAMES HARTNEY, Manitoba Emigration Agt., Union Station, Toronto, Ont.

THE FAVORITE ROUTE

To **New York** and
.....**Philadelphia**

GRAND TRUNK RAILWAY

in connection with the

LEHIGH VALLEY RAILROAD

Route of the "Black Diamond Express," hand-somest train in the world.

Leaving **Toronto** daily (except Sunday) at 9 a.m., Hamilton 9.55 a.m., arrive New York 10.08 p.m.

Fast Night New York and Philadelphia Express, leaving Toronto 6.15 p.m. daily, arrive New York 9.38 a.m., Philadelphia 8.56 a.m.

Pullman Sleepers from Toronto, Hamilton and London to New York and Buffalo to Philadelphia.

Call on Grand Trunk Ticket Agents for tickets and further information, or address

Robt. S. Lewis,

Canadian Passg'r Agt., 33 Yonge St., Toronto.

Geo. R. Chesbrough,

West'n Passg'r Agt., Buffalo, N.Y.

Chas. S. Lee,

Gen'l Passg'r Agt., New York.

A. A. Heard,

Ass't Gen'l Passg'r Agt., New York.

All C.P.R. Agents in

**MANITOBA,
ASSINIBOIA,
ALBERTA and
BRITISH COLUMBIA**

sell through tickets to the Old Country, cheaper than if passengers bought railway tickets to New York or Montreal, and then re-booked.

They also sell prepaid tickets to passengers coming from the old country, cheaper than the rate obtainable in Europe, and on favorable terms.

Apply to any agent Port Arthur and west, or to

W. P. F. CUMMINGS,

**C.P.R. Offices,
WINNIPEG.**

Chicago & Grand Trunk Railway.

The receivers, E. W. Meddaugh & H. B. Joy, issued the following circular Nov. 30:—"In accordance with a decree of the U.S. Circuit Court for the eastern district of Michigan, the undersigned will, at 1 minute after midnight of Nov. 30th, transfer to the Grand Trunk Western Ry. Co., possession of the railway & property of the C. & G.T.R. Co. On & after 1 minute after midnight of Nov. 30, 1900, all persons employed by the undersigned as receivers in said cause in or about the operation of the property embraced in said decree are relieved from duty to said receivers, & after that date will cease to be in the service of the said receivers. The liability & obligation of the receivers in respect to said property, to the persons employed thereon, & to the public, terminate absolutely at 1 minute after midnight of Nov. 30, 1900."

President Hays, of the Grand Trunk Western Ry. Co., issued the two following circulars on the same date:—"The G.T.W.R. Co. has, by virtue of sale & purchase under decree of foreclosure against the Chicago & G.T.R. Co., rendered by the U. S. Circuit Court for the eastern district of Michigan, & subject only to the obligations imposed by such decree, become the owner of all the property described in said decree. Notice is given that at 1 minute after 12 o'clock midnight, on Nov. 30, the G. T. W. R. Co. will take possession of & operate the said property."

"At a meeting of the board of directors of the G. T. W. R. Co., held Nov. 22, the following officers were elected:—C. M. Hays, President; J. H. Muir, Treasurer; C. Percy, Secretary. All other persons in the service of the receivers of the C. & G.T.R. are authorised to act in their respective positions & capacities for this Co. until further notice."

Display, etc., of Transportation Folders.

The Railway & Steamship Folder Display Co. has recently been organized to carry on the display of folders in racks in the leading stations, ticket offices & hotels, & to distribute folders & other printed matter to coupon & exchange ticket offices.

The Co. has bought the business of the Railway & Steamship Advertising Agency heretofore carried on by Jos. Simpson, of Toronto, who died recently, & has also secured the franchises, &c., of the National Railway & Steamship Advertising Co. of Canada, & of the Railway Folder Advertising Co. of Ontario, Ltd.

A number of the Co.'s racks are already located at the most important points in Ontario, & this branch of the service will be extended to the other provinces. The distribution branch, already in thorough operation in Ontario, is also being extended, so as to embrace the rest of the Dominion, & the Co.

is thoroughly equipped to render excellent service.

Great care is being taken to perfect the details of organization, & there is no doubt that the work will be carried on in a thoroughly systematic & up-to-date manner, the management being in capable & experienced hands.

Already a number of leading lines, including, among others, the Canadian Pacific, Grand Trunk, Intercolonial, Lehigh Valley, Dominion Atlantic, Mexican National, Delaware, Lackawanna & Western, Canada Atlantic, Illinois Central, Chicago, Milwaukee & St. Paul, Lake Erie & Detroit River, Wabash, Ottawa & Gatineau, Quebec & Lake St. John, Florida East Coast, Cleveland & Buffalo Transit Co., Northwest Transportation Co., Richelieu & Ontario Navigation Co., Northern Navigation Co., & Canada Atlantic & Plant Steamship Co., have placed their business in the Co.'s hands.

The head office of the Co. is at 16, Manchester Building, Melinda St., Toronto, with a branch & distributing office at 111, Union Station, Toronto.

Electric Car Brake Tests.

Early in 1899 the Board of Railroad Commissioners of the State of New York authorized a public competitive test of brakes for street surface cars, the action being prompted by the alarming increase in the number of serious accidents happening on electric railways throughout the State, which the Board believed to be due, to a large extent, to the inefficient brakes in use.

The tests were made in Aug., 1899, on the Lennox Avenue line between 135th & 146th streets, New York City, on cars furnished for the purpose by the Metropolitan St. Ry. Co. Between the points mentioned the track is of 90 lb. girder rail, 2 inch head, double-track underground electric construction. The distance between the streets named is 2,750 ft., & there is a descending grade northward from 135th St. of 8.8 ft., nearly uniform between the points.

The cars furnished had 8 wheels, with maxim traction trucks, fitted with G.E. 1,000 motors, with non-suspension driving wheels 30 ins., tread wheels 20 ins. in diameter, length of car body over all 28 ft., outside measurement of wheel base 17 ft. 6 ins.

The test was made by C. R. Barnes, electrical expert of the Board, assisted by W. A. Pierson, electrical engineer of the Metropolitan St. Ry., who designed & constructed a device that automatically recorded the result of each stop, in the form of curves, which showed the number of feet that the car had run after "stop" signal had been given & the time consumed in bringing the car to a standstill.

It was the intention to make the test at initial speeds of 20, 16,

12 & 8 miles an hour, but it was found that the higher speeds could not be attained with the motor equipment used, so the tests were made at 16, 15, 12 & 8 miles an hour. These tests were made without sand; & 2 additional stops, at 16 miles, were made with sand.

In an elaborate report of the result of the tests, Mr. Barnes says: "The reliability of the air brake has been thoroughly established by its use on steam roads. A large number of them are now used on electric cars, & with proper inspection & care, the air brake, as applied to electric cars, is a reliable, powerful, quick & easily controlled means of applying the braking power to a car wheel. Four systems of air brakes were submitted & tested. All were similar, so far as relates to the use of air under compression in a cylinder, to operate a piston from which, through levers, the power was transmitted to the brake shoes. They differed in the method of compressing the air & applying it to the piston."

"The G. P. Magann Air Brake Co. presented what is known as a storage air system, in which there is an air compressor & reservoir located at the power house or some central point on the street car system. This reservoir is charged with air usually compressed to 300 lbs. pressure. The car is equipped



GUELPH STATION, CANADIAN PACIFIC RAILWAY.
The oldest building in Canada used as a railway station.

Station, not Depot.—R. Luce, in his excellent little work "Writing for the Press," says:—"Depot." Avoid this mischief-making French word by substituting station. Every railway depot is a station, but very few stations are depots."

The Oldest Station in Canada.—On this page is an illustration of what we believe to be the oldest building in Canada used as a railway station. Guelph was founded on April 23rd, 1827, when the first clearing was made in the forest under the direction of John Galt, the first Commissioner of the Canada Company. The first building put up on the town-site was the Priory, which was built of logs, & finished in 1828 as an official residence for Mr. Galt. Afterwards it passed into the hands of the late David Allan, who lived in it for many years, & when the Guelph Junction railway was built it was secured as the passenger station at the Guelph terminus, & is still used for that purpose by the C.P.R. Co. which leases the line.

The use of hoops to deliver train orders to an engineman or conductor without stopping the train has been introduced on the Pittsburgh division of the Pittsburgh Cincinnati, Chicago & St. Louis.

with 2 storage reservoirs, which are charged in a few seconds from the stationary reservoir at 300 lbs. pressure. By means of a reducing valve this pressure is reduced to 50 lbs., at which pressure the air enters an auxiliary reservoir, from which it is controlled, to the brake cylinder by means of the engineer's valve, in the usual manner. There are some special features in the construction & operation of this valve. The storage equipment of cars is calculated for 300 stops, which is sufficient for ordinary car operation: when necessary this capacity can be increased."

In the "conclusions" of the Board of Railroad Commissioners, which wind up the report, the Board says: "After careful consideration of the whole subject of brakes for electric cars, the Board has determined that, except in special cases, where the liability to accident is very remote, the ordinary single chain & spindle hand brakes now generally used should be replaced by the brakes made by one of the following manufacturers, or any other which in the judgment of the Board is hereafter shown to be equally efficient."

The list given by the Commissioners is divided in the following order: air brakes, electric brakes, friction brakes, hand power brakes, & the list is headed in order of merit by the air brake made by the G. P. Magann Air Brake Co. of Toronto & Detroit, Mich.

The G. P. Magann Air Brake Co. had a stand at the recent convention of the American Street Railway Association at Kansas City, in charge of E. C. Rutherford, but did not make an extended exhibit. By invitation a number of delegates rode over the new Kansas City-

Leavenworth electric line, all the cars of which are equipped with the Magann brake. The freedom from complicated parts in this braking system, & its quick & accurate operation won for it many words of commendation.

Montreal Street Railway Company.

The following report was presented at the 40th annual meeting Nov. 7:

The business for the year ended Sep. 30 shows a net profit of \$647,246.64, against \$630,870.61 for the previous year. Out of this four quarterly dividends of 2½% each have been declared, amounting in all to \$512,500, leaving a surplus of \$134,746.64, of which \$50,000.00 has been added to contingent account & the balance—\$84,746.64—to surplus account. \$27,091.91, expended during the year on special renewals, has been charged against contingent account. The roadbed, rolling stock, buildings & other property have been efficiently maintained. The increase in the business during the year has been most satisfactory.

The operating expenses show an increase of 1.11% as compared with last year. This is due to the cost of the more frequent & extended car service demanded by the City; increased expenditure for snow clearing, occasioned by the extraordinary storms during March; increased cost of fuel & general supplies, as well as increased wages.

A car-shed, to accommodate the additional rolling-stock built during the year, has been erected on the Co.'s property at St. Henri; local offices, public waiting-room & rooms for

conductors & motormen have been erected at Hochelaga. A fireproof addition has been built to the William St. power-house, to accommodate a portion of the new electrically-driven plant required in connection with the contract entered into with the Chambly Mfg. Co. for additional power. The car-shops & machine-shops erected last year, as well as the new running-sheds at Hochelaga & St. Denis St., have proved most convenient & satisfactory, & have enabled the Co. to attend to its increased business with advantage.

The rolling-stock has been increased during the past year by the addition of 56 closed motor cars, 45 open motor-cars, 1 stores-car with equipment, 7 supply-cars & 80 trucks, & the electrical equipments for the cars have been increased by 128 motors & 83 controllers. There are at present under construction in the Co.'s shops 6 extra long closed motor-cars, mounted on double trucks, making in all 25 cars of this new type, which will be available for service during the coming winter. The feeder wire system, for the purpose of distributing power from the power-house to the different sections of the line, has been largely added to & increased in capacity, & the results obtained have been most beneficial. The system of cast-welding rail-joints has been continued & extended, the experience obtained during the past two years fully justifying the expense incurred.

During the past year the Co. has paid to the City of Montreal the following amounts: tax on earnings & other taxes, \$84,423.71; on account of snow-clearing, \$84,256.22; total, \$168,679.93. The question between the City

WIRE ROPES, MARION STEAM SHOVELS, BALLAST UNLOADERS.

Columbus Pressed Bowl Wheel and Drag Scrapers.

.....Wheelbarrows, Picks, Shovels, Mattocks, Etc.

Contractors Rails and Dumping Cars.

Saddle Tank Locomotives.



JAMES COOPER, 299 ST. JAMES ST., MONTREAL.

Established 1831.

Annual Capacity, 1,000.

BALDWIN LOCOMOTIVE WORKS.

SINGLE EXPANSION AND COMPOUND LOCOMOTIVES.



Built for the Great Northern Railway.

Broad and Narrow Gauge Locomotives; Mine and Furnace Locomotives; Compressed Air Locomotives; Steam Cars and Tramway Locomotives; Plantation Locomotives; Oil Burning Locomotives.

Adapted to every variety of service, and built accurately to gauges and templates after standard designs or to railroad companies' drawings. Like parts of different engines of same class perfectly interchangeable.

**Electric Locomotives and Electric Car Trucks
with Westinghouse Motors.**

Burnham, Williams, & Co., = = Philadelphia, Pa., U.S.A.

Established 1849

CHAS. F. CLARK, Pres. JARED CHITTENDEN, Treas.

BRADSTREET'S

Capital and Surplus \$1,500,000

OFFICES THROUGHOUT THE CIVILIZED WORLD
EXECUTIVE OFFICES

NOS. 346 and 348 BROADWAY, N.Y. CITY, U.S.A.

THE BRADSTREET COMPANY gathers information that reflects the financial condition and the controlling circumstances of every seeker of mercantile credit. Its business may be defined as of the merchants, by the merchants, for the merchants. In procuring, verifying and promulgating information, no effort is spared, and no reasonable expense considered too great, that the results may justify its claim as an authority on all matters affecting commercial affairs and mercantile credit. Its offices and connections have been steadily extended, and it furnishes information concerning mercantile persons throughout the civilized world.

Subscriptions are based on the service furnished, and are available only by reputable wholesale, jobbing and manufacturing concerns, and by responsible and worthy financial, fiduciary and business corporations. Specific terms may be obtained by addressing the Company at any of its offices.

CORRESPONDENCE INVITED

OFFICES IN CANADA:

Halifax, N.S.	Hamilton, Ont.	London, Ont.
Montreal, Que.	Ottawa, Ont.	Quebec, Que.
St. John, N.B.	Toronto, Ont.	Vancouver, B.C.
Victoria, B.C.		Winnipeg, Man.

THOS. C. IRVING,
Gen. Man. Western Canada, Toronto.

JOHN A. FULTON,
Gen. Man. Eastern Canada, Montreal.

& the Co., with reference to the interpretation of the section of the contract respecting snow clearing, has been referred to the courts & a decision is expected at an early date.

The following figures are extracted from the tables accompanying the report: Gross receipts, \$1,769,904.78, increase over 1899 6.57%; operating expenses, \$992,925.11, increase 8.76%; operating expenses per cent. of car earnings, 56.34 against 55.23; net earnings, \$776,979.67, increase 3.90%; net income per cent. of capital, 12.63, against 13.19; passengers carried, 43,362,262, increase 7.92%; transfers, 13,194,974.

ASSETS.

Cost of construction, etc.	\$3,162,843 41	
equipment, etc.	2,555,365 02	\$5,718,208 43
Real estate & buildings		1,557,785 47
Stores		48,255 71
Accounts receivable		43,397 82
Cash in bank & in hand	178,317 20	
Cash on deposit with City of Montreal	25,000 00	203,317 20
		<u>\$7,570,964 63</u>

LIABILITIES.

Capital stock, paid up		\$5,497,055 00
Bonds—5% payable Mar., 1908	\$292,000 00	
4% payable Aug., 1922	681,333 33	973,333 33
Mortgages		6,034 51
Accounts & wages payable		69,587 79
Accrued fixed charges—		
Interest on bonds	5,150 00	
Tax on earnings	85,081 62	90,231 62
Employees' securities		7,118 60
Unclaimed dividends		1,956 57
Unredeemed tickets		16,942 35
Suspense accounts		49,053 07
Dividend, payable Nov. 2, 1900		135,000 00
Contingent account		164,333 09
Surplus		560,318 70
		<u>\$7,570,964 63</u>

INCOME ACCOUNTS.

	1900.	1899.
Dividends	\$512,500 00	\$478,333 33
Transferred to contingent acct	50,000 00	50,000 00
Transferred to surplus account	84,746 64	102,537 28
Income over & above expenses & fixed charges, exclusive of dividends	<u>\$647,236 64</u>	<u>\$630,870 61</u>

Electric Railway Statistics.

The following has been furnished by the Dominion Government Statistician, Geo. Johnson, F.S.S.

During the year 1899, the 632 miles of track in Canada were so used that the total number of miles run by cars was 29,646,847.

The number of passengers carried was 104,032,659, which is equal to carrying every man, woman & child in the country 20 times.

The mileage run & the passengers carried show that for each mile run the electrics carried 3½ passengers.

Compared with the previous year, the number of passengers carried increased nearly 9,500,000, & the number of miles run by over 1,000,000; the passengers carried per mile run increased from 3½ to 3½.

The number of transfers given in Toronto was over 10,500,000. These are not included in the total of passengers carried.

The paid-up capital invested in electric railways is \$21,700,000.

The electric railways have a bonded debt of \$12,800,322.

The number of cars in active service was 1,544, & of employees 4,329.

The increase in cars over 1898 was 165, & of employees 325.

The steam railways in 1899 carried 16,168,191 passengers, running a train mileage of 25,292,859, thus making an average of 1½ passengers per mile. The electric cars travelled over 4,300,000 more miles than the passenger & mixed trains of the steam railways.

Together the steam & electric railways carried over 120,000,000 passengers, & the proportion was about 13 by steam to 87 by electricity.

General Telephone Matters.

The Inverness & Victoria Telephone Co. is running a line to Sydney, C.B.

The Bell Co. recently declared a quarterly dividend of 2% payable Oct. 15.

The New Brunswick Telephone Co. has increased its capital stock to \$250,000.

The Gloucester County Telephone Co. is putting in a local exchange at Bathurst, N.B.

The Nova Scotia Telephone Co. is reported to be about to put a number of its Halifax wires under ground.

The Nova Scotia Telephone Co. has replaced all its wires in New Glasgow, which were formerly iron, with copper.

A long-distance line is talked of between Winnipeg & St. Paul, Minn., which would give through connection to Chicago.

The New Brunswick Telephone Co. is reported to have bought a lot on Chipman Hill, St. John, to build an exchange on.

President Sise, of the Bell Co., denies any knowledge of the rumored purchase of the Merchants Telephone Co. by his Co.

The Bell Co. has constructed a cable between Calumet, Que., & Hawkesbury, Ont., giving Calumet connection with Montreal & Ottawa.

Under a new agreement between the Bell Co. & the American Telephone & Telegraph Co. of the U.S., the Bell Co. has been able to make a reduction on rates from Canada to U.S. points.

The town of Neepawa, Man., which operates a municipal telephone system, has recently installed a central exchange switch board with a capacity for 150 subscribers & 150 long-distance telephones.

The Manitoulin & North Shore Telephone & Telegraph Co. operates about 150 miles of telephone lines between Little Current & 17 offices on Manitoulin Island, & 40 miles of telegraph lines from Little Current to the C.P.R. Co.'s telegraph system.

The Western Telephone & Telegraph Co., recently incorporated in B.C., will, it is said, build lines through the Nelson & Slocan districts & to connect the Boundary district with the Pacific coast. The lines will probably be operated in connection with those of the Columbia Telephone Co., which is extending its lines 125 miles to Brewster, Wash.

The Canadian Western Telegraph & Telephone Co.'s line, which was established a few years ago between Fort Steele & Swansea, B.C., but abandoned, is to be rebuilt, with a view of extending it, when business warrants, to Moyie & then to Nelson, where through communication will be obtained with Southwest B.C. & with the Northwestern States.

The Bellechasse Telephone Co., which amalgamated some time ago with similar companies in the Quebec district, is said to have concluded a new amalgamation with the Merchants Telephone Co. of Montreal. It is said that the Merchants Co. will extend its line to Three Rivers, while the Bellechasse Co. will stretch its wires down to Rimouski, where it will join the Metis Co., whose line is to extend as far as Campbellton.

The Bell Co.'s stock is ranging at about 170 now. The calls on the new shares have all been paid. The Co. is doing a big business both by its long-distance lines & through exchanges, & should show a large surplus in its next report. The stock is pretty much all in the hands of investors & outside the pale of speculative influences. At the present price the stock yields 4.70 on investment. A year ago it was selling at 189.

The Vernon & Nelson Telegraph Co. has a contract from the Miner-Graves smelter owners for the construction of a 30-mile metallic circuit private telephone system between Greenwood & Grand Forks, B.C., via Phoenix, including connections at the offices of the Knob Hill & Old Ironsides mines there, & at White's camp with connections at the City of Paris & Lincoln mines, thence on to Grand Forks with a branch to the Granby smelter.

The Bell Co. has built about 200 miles of long-distance lines in Manitoba this year. The main line runs from Winnipeg to Brandon, with a branch from Carberry to Minnedosa. On the main line there are offices at Portage la Prairie, Carberry, McGregor, Sydney & Brandon, & on the branch at Franklin, Neepawa & Minnedosa. The lines are built of no. 12 standard gauge copper wire. Arrangements are being made to rebuild the line between Winnipeg & Selkirk. A night rate is to be put in force. Next year it is expected the Co. will build from Winnipeg to Carman & Morden.

British Columbia and Washington
Telephones.

At our request, W. B. Davey, President of the Columbia Telephone & Telegraph Co., Spokane & British Columbia Telephone & Telegraph Co., & the Northwestern Telephone & Telegraph Co., has furnished the following information:

There are three companies under my management, two in the State of Washington & one in British Columbia, all connected into one system.

The Columbia Telephone & Telegraph Co., incorporated by the Dominion Parliament in 1896, has franchises in Rossland, Grand Forks, Greenwood, Phoenix, Midway, Eholt & Columbia. Operates exchanges in these towns. Number of phones in exchanges: Rossland, 117; Grand Forks, 75; Greenwood, 150; Phoenix, 65; Midway, 15; Eholt, 4. Has the following toll lines:

From Rossland to Butte Mills	10 miles
From Cascade to Grand Forks	16 "
From Grand Forks to Greenwood, via Columbia, Lime Creek & Eholt	24 "
From Greenwood, via Anaconda, Boundary Falls, Midway, Rock Creek to Camp McKinney	40 "
From Greenwood to surrounding camps & mines, including Deadwood, Morrison Mine, Mother Lode, Buckhorn	20 "
From Greenwood to Phoenix & surrounding mines	10 "
From Eholt to B.C. Mine, Oro Den Oro Mine, Rathmullen mine & Summit City	10 "
From Grand Forks to White's Camp & City Paris Mine, Lone Star via Columbia & Nelson, Wash.	18 "
From Rock Creek to International boundary	4 "
Total long distance lines	152 "

Our exchanges in each town have telephones in every mine of importance & industrial plants of every description. The long distance is constructed of no. 10 hard drawn copper wire throughout & is metallized. Our exchanges are the metallic or two-wire system. About 400 miles of iron wire has been used in the exchanges in the various towns.

Our toll line offices are: Rossland, Grand Forks, Greenwood, Columbia, Cascade City, Phoenix, Midway, Rock Creek, Nelson (Wash.), Eholt, Bolster (Wash.), White's Camp, Lone Star, Camp McKinney, Butte Mills, Lime Creek, Gilpins.

Our wires are the only telephone & telegraph wires into Camp McKinney & the Okanagan Country in Washington.

The Spokane & British Columbia Telephone & Telegraph Co. Capital stock \$500,000. Incorporated under the laws of the State of Washington six years ago. System in the

State of Washington. Owned & operated by the Columbia Telephone & Telegraph Co., of B.C., with head office at Grand Forks, B.C. The head office of the Spokane & B. C. T. & T. Co. is also at Grand Forks. The Co. has the following long distance toll lines:

From Spokane to International Boundary near Butte Mills, B.C., & connecting there with the Columbia.....142 miles
From Bossburg, via Halls, to the International boundary line near Cascade, B.C., & connecting there with the Columbia system..... 30 "
From Bossburg, via Myers' Falls to Republic, Wash., connecting Republic exchange..... 37 "

Total long distance.....209 "

The capacity of Republic switchboard is 200 'phones, & 130 'phones are installed at varying rates. The long distance line is constructed of no. 10 hard drawn copper.

The toll offices are Spokane, Republic, Myers' Falls (also a switching station), Kettle Falls, Marcus, Colville, Bossburg (also a switching station), Northport, Chewelah, Loon Lake, Deer Park, Hall's Ferry, Pelkies, Harts, Sherman's, Springdale, Kaylor's, Dartford, Ryan, Wayside.

We have no exchange in Spokane, but have a small switchboard with capacity of 100 phones, & all the principal business houses near our office have our instruments for the long distance business use. Work on a large local exchange in Spokane will be commenced at an early date, as soon as the weather is more favorable.

The Northwestern Telephone & Telegraph Co. Head office N. W. T. & T. Co., Grand Forks, B.C.

Distance of long distance toll lines of hard drawn no. 10 copper-wire, from the International boundary near Rock Creek, B.C., to Brewster (Wash.) southerly is 127 miles. We

have a 12 drop switchboard operating in Loomis, Wash.

Long distance offices: Brewster, Davis, Clover, Mallotts, Conconnully, Riverside, Loomis, Gold Hill, Golden, Oro, Molson, Chesaw, Review Mine.

Every telephone on the three entire systems is fitted with long distance transmitters.

The Northwestern line opened for business Oct. 25, 1900. The Columbia was first operated July, 1899. The Spokane & B.C. first operated about July 1, 1897.

During the last session of the B.C. Legislature we were granted a charter to operate telephone exchanges & lines & telegraph lines in every municipality (including cities) within the Province. The name of the new incorporation with these powers is the "Western Telephone Co." It is the intention to immediately construct & extend our line to the coast of B.C., connecting there with the other lines from out of Portland, &c.

Canadian Roadmasters' Association.

The fourth annual convention was held in the club rooms of the Windsor Hotel, Montreal, on October 18th. President Jno. Graham, in taking the chair, made a few introductory remarks. Referring to the small attendance, he said that he believed this would be remedied as soon as the practical nature of the meetings & the great benefit to be derived from them became more generally known.

The Secretary-Treasurer, J. Drinkwater, reported that since the previous convention two members had died, W. Cooper, of Three Rivers, Que., & R. Watters, of Portage la

Prairie, Man., & five additional members had joined, making a net increase of three, & a present membership of 44. The financial statement showed \$81 on hand, against \$63.58 a year ago.

The Secretary then called the roll as follows. Those before whose name an asterisk is placed were present:—J. Shanks, C.P.R., Montreal; R. Shanks, Algoma Central, Sault Ste. Marie; W. Shanks, Canadian Northern, Winnipeg; *J. Drinkwater, C.P.R., Winchester; F. W. Green, C.P.R., Fort William; *J. Jelly, C.P.R., Carleton Junction; W. Kelly, C.P.R., Sudbury; James Yeo, Riviere du Loup; J. Hennessy, C.P.R., Three Rivers; *Thomas Graham, C.A.R., Depot Harbor; Thomas Landers, C.P.R., Farnham; Wm. Moe, C.P.R., Sherbrooke; *J. R. Brennan, O. & G.R., Ottawa; G. Munro, C.P.R., Kamloops; P. McCarty, C.P.R., Montreal; D. Jelly, C.P.R., Nepigon; J. Telfer, C.P.R., Calgary; *J. Graham, C.A.R., Ottawa; J. Leslie, C.A.R.; *A. McAuley, C.P.R., Toronto; J. Malloy, C.P.R., Smith's Falls; E. Murphy, C.P.R., Woodstock; R. H. Lowe, C.P.R., Regina, N.W.T.; Thomas Hickey, M.C.R., St. Thomas; M. Keefe, N.Y. & O.R., Ottawa; A. Black, C.P.R., Pogomasing; M. Morin, C.P.R., St. Therese; E. Myers, C.P.R., Smith's Falls; *F. J. Holloway, C.P.R., Parkdale; George Seaman, I.C.R., Moncton; H. L. Johnston, C.P.R., Nakusp; J. Coughlin, C.P.R., White River; A. Gordon, C.P.R., Parkdale; Wm. Rose, C.P.R., London; A. N. McLennan, S. & L.R., Glace Bay, N.S.; W. O'Donnell, C.P.R., Chapleau; G. Shanks, C.P.R., Farnham; W. Storms, C.P.R., Field, B.C.; A. J. Megrund, C.P.R., Rat Portage; *N. Delaire, C.P.R., Montreal; *B. Tansley, C.P.R., Orangeville.

C. P. R. LANDS.

The Canadian Pacific Railway lands consist of the odd-numbered sections along the Main Line and Branches, and in Northern Alberta and the Lake Dauphin District. The Railway Lands are for sale at the various agencies of the company in Manitoba and the North-West Territories at the following prices:

Lands in the Province of Manitoba average \$3 to \$6 an acre.

Lands in Assiniboia, east of the 3rd meridian, average \$3 to \$4 an acre.

Lands west of the 3rd meridian, including the Calgary District, generally \$3 per acre.

Lands in Northern Alberta and the Lake Dauphin District, \$3 per acre.

TERMS OF PAYMENT.

The aggregate amount of purchase money and interest is divided into ten instalments, as shown in the table below; the first to be paid at the time of purchase, the remainder annually thereafter, except in the case of the settler who goes into actual residence on the land and breaks up at least one-sixteenth thereof within one year, who is entitled to have second instalment deferred for two years from date of purchase.

The following table shows the amount of the annual instalments on a quarter section of 160 acres at different prices:

160 acres at \$3.00 per acre, 1st instalment \$71.90, and nine equal instalments of \$60.
160 acres at \$3.50 per acre, 1st instalment \$83.90, and nine equal instalments of \$70.
160 acres at \$4.00 per acre, 1st instalment \$95.85, and nine equal instalments of \$80.
160 acres at \$4.50 per acre, 1st instalment \$107.85, and nine equal instalments of \$90.
160 acres at \$5.00 per acre, 1st instalment \$119.85, and nine equal instalments of \$100.
160 acres at \$5.50 per acre, 1st instalment \$131.80, and nine equal instalments of \$110.
160 acres at \$6.00 per acre, 1st instalment \$143.80, and nine equal instalments of \$120.

DISCOUNT FOR CASH. If land is paid for in full at time of purchase, a reduction from price will be allowed equal to ten per cent. of the amount paid in excess of the usual cash instalment.

Interest at six per cent. will be charged on overdue instalments.

Write for maps and full particulars.

F. T. GRIFFIN, - Land Commissioner,
WINNIPEG.



**Rhodes,
Curry & Co.,
Ltd.,**

**Railway and
Street Cars**

of all descriptions.

Special Cars for Coal, Ore,
Lumber, &c., with Ball-
Bearing Wheels.

**Car Wheels, Castings, Forgings, &c.
AMHERST, NOVA SCOTIA.**

**JOHN S. METCALF CO.,
Engineers, Grain Elevator Builders,
1075 W. FIFTEENTH STREET, CHICAGO, ILL.**

A partial list of elevators which have been designed and constructed by us and under our supervision.

Burlington Elevator, St. Louis, Mo.....	Capacity.....	1,300,000 Bushels
Grand Trunk Elevator, Portland, Me.....	"	1,000,000 "
Export Elevator, Buffalo, N.Y.....	"	1,000,000 "
J. R. Booth Elevator, Depot Harbor, Ontario.....	"	1,000,000 "
Cleveland Elevator Company's Elevator, Cleveland, O.....	"	500,000 "
Erie R. R. Transfer & Clipping House, Chicago, Ill.....	"	100 cars in 10 hrs.
Manchester Ship Canal Co.'s Elevator, Manchester, Eng.....	"	1,500,000 "
Burlington Elevator Co., Peoria, Ill.....	"	500,000 "
Canada Atlantic Railway Elevator, Coteau Landing, Que.....	"	500,000 "
Northern Grain Co., Manitowoc, Wis.....	"	1,350,000 "
Union Elevator, East St. Louis, Ill.....	"	1,100,000 "
Montreal Warehousing Co.'s Belt Conveyer System.....		

We make a specialty
of furnishing.....

PLANS AND SPECIFICATIONS.

ELECTION OF OFFICERS.

The following were elected:—President, A. McAuley, C.P.R., Toronto Jct.; Vice-President, J. R. Brennan, P. P. Jct. R. & O. & G.R., Ottawa; Secretary-Treasurer, J. Drinkwater, C.P.R., Winchester, Ont.; Executive Committee, the above-mentioned officers, & J. Jelly, C.P.R., Carleton Jct., Ont.; T. Graham, C.A.R., Depot Harbor, Ont.; F. J. Holloway, C.P.R., Toronto Jct.; N. Delaire, C.P.R., Montreal.

THE CREEPING OF RAILS.

The Committee, J. Jelly, J. R. Brennan & T. Hickey, reported as follows:—We beg to report that the best method to prevent creeping of rails on a soft or swampy roadbed is to put on 18 inches of cinders; to lay ties from 10 to 12 ft. long, from 7 to 8 ins. thick, & not more than 8 ins. from bearing to bearing; & block 4 ties on each side of joint, under each rail, with 4x4 scantling, using angle bars on joints.

A. MCAULEY.—I quite agree with the report. When I was on the Havelock section of the C.P.R., 2 or 3 years ago, we adopted the principle of putting in long ties of 12 ft., & they were 8 ins. thick, with a bed of cinders & a long angle bar, & we found that it prevented the rails from creeping, although with a heavy weight of trains & engine it is almost impossible to prevent it altogether. I think the long ties are a great preventative to the creeping of rails.

F. J. HOLLOWAY.—Where the division is a heavy gradient division we had continuous trouble with the creeping of rails, & I relaid the road with 73-lb. rails, with angle bar, & I have had no trouble since. I find that the angle bar has stopped all the creeping.

J. GRAHAM.—With a long angle bar or a short one?

F. J. HOLLOWAY.—A short one.

A. MCAULEY.—The place that I have reference to where the creeping took place, if you stand on the track and a train passes by at the rate of 35 or 40 miles an hour you have to catch the fence to keep yourself up. If an angle bar stops all Mr. Holloway's creeping he cannot have very much soft stuff.

F. J. HOLLOWAY.—I have found the creeping continue for half a mile on one side of the track, & then it will reverse & go the other way. I put the question to our engineer, Mr. Hertzberg, & he saw it himself, but he could not explain it.

J. DRINKWATER.—I quite agree with the report that the long ties are certainly a great help to keep your track in line at those places, & I try to keep the rails tightened up, but there is a danger of their kicking out in very hot weather. Those are the places that the rails have a tendency to crowd, & of course, these long ties put close together, well spiked & ballasted with cinders, will hold the track in line & admit of rails being put tighter together than you otherwise could. In my experience the extra opening of the joints will allow your rails to creep. I have a track that will travel 8 or 9 ins. both ways the same day in hot weather, & I saw something not long ago stating that the only way to prevent the rail from creeping was to put the anti-creeper on the centre. I do not think the anti-creeper on the centre of the rail would be any more effective than on the joint or any other point; I cannot see how it could be. I think it was an advocate of some patent anti-creeper who made that claim, & I hope he will be able to satisfy the trackmen of America that his anti-creeper will prevent the track from creeping. If it turns out to be effective I would like to have a few of them, but so far as I know I do not think it would be very much good.

T. GRAHAM.—Of course, why you put cinders on is to keep the swamp from breaking. When the swamp is 15 or 20 ft. deep the best way is to get your bottom & have it solid there. I think the next best plan is the long

tie, & I think a good scantling spiked to every tie would keep them in place.

J. JELLY.—Would not the block keep them in place?

T. GRAHAM.—My experience of this block between the ties is that it is continually shoving up.

J. DRINKWATER.—Have you noticed, Mr. Holloway, where the track creeps one way & the other the joint ties travel with the rail?

F. J. HOLLOWAY.—Yes.

J. DRINKWATER.—It would affect the gauge of your track, would it not?

F. J. HOLLOWAY.—Yes.

A. MCAULEY.—I think that the creeping of the rails on one side or the other largely depends upon the way the bolts are tightened. For instance, we have on the Havelock & Toronto section of the C.P.R. an oval hole of one & one-quarter inches, & the size of the bolt we used on them is a three-quarters bolt. With the last 80-lb. rail that we laid there you cannot get more than one quarter of an inch expansion in any joint, & the holes are round holes, & we use seven-eighths bolts. I think that is the great trouble, one rail is creeping more than the other, because that side is left slackened, the bolts are not so well tightened up & are allowed to pull.

J. GRAHAM.—In my division I have three miles of swamp where the steel creeps on the north side of the track running east & west, & it creeps more than on the south side. I never could make out what the cause of it was. The seven-eighths bolts will snap in two unless you watch them close & keep them driven back.

J. DRINKWATER.—The rail raises on account of rolling the tie at the joints?

J. GRAHAM.—Yes, & takes the spikes with it. When the ties cannot move the spikes will draw out of them.

A. MCAULEY.—The creeping is caused altogether by the roadbed. If the roadbed is soft you cannot put anything to prevent it if the train is running at full speed. The only way to prevent it is the long ties & the heavy rails.

J. GRAHAM.—The most of our road, the Canada Atlantic, is all east & west, & we have got as heavy ballast in the swamp, & the track has been laid 19 years this summer. However, I would like to hear from one of the new members, Mr. Delaire, on the subject.

N. DELAIRE.—I have only been about two months in the position, & I do not come here to teach but to learn, so that I do not think anything I could say would interest your Association very much.

A. MCAULEY.—I think the report of the committee is quite agreeable to the members, that the long ties & the cinders on soft bottom are the proper thing, with the heavy rail, & I would move that the report be adopted.

The motion was unanimously adopted.

THE BEST MODE OF HANDLING STEAM SHOVELS.

The Secretary stated that he had no report from the committee on the best mode of handling steam shovels, distributing & unloading ballast, & all work to be done in connection with ballasting, etc., filling trestles, etc. The committee was composed of E. Murphy, A. McAuley & T. Graham, & the two latter were present.

A. MCAULEY.—About 8 or 9 days ago I saw Mr. Murphy, & he told me to write a report & send it down to him, if I wished to make it, but I felt that the time was too short, & so I did not do so. The only report I have to make is that I think the Barnhardt shovel is the best shovel we have had put in the market. It will load from 180 to 200 cars a day with good men. As for the unloading, I prefer the Mill car myself. I think it is one of the grandest things we ever had. I have had 18 or 20 years' experience in ballasting, & I think the Mill car is one of the finest things for unloading I ever saw. It has given every

roadmaster that I know of great satisfaction. The Mill car pulls your cable to the car & strings it over the train of 40 cars in three minutes, so that a great deal of time is saved. Mr. Leonard, our Superintendent, was very anxious to try it up in Toronto this year, & we got sufficient cable to load 40 cars, & after 2 or 3 days I would not be without it at all.

J. DRINKWATER.—How would it be if you tried to unload with the train moving?

A. MCAULEY.—I think that could be done with satisfaction.

T. GRAHAM.—In going into the pit you should always try to lay it out so that the engine can spot & pull out the train. Every time you shunt you lose 10 minutes. About working the pit, if you are not around yourself, or have a man there to look after the train, as a rule there are a good many minutes lost. Every conductor has to report to me every day his arrival at the pit & departure from it for every train that he pulls out of the pit. The steam shovel engineer has also to fill out a form giving me the time the train arrives at the steam shovel & the time of departure. In this way you can follow them up very closely. If there is any delay you can find it out & the cause. I also make the conductors report how many minutes they have to wait for orders, & in this way I find out if they have not given the train the proper orders. At the end of every month I send each pit the report of the daily average of the shovels for that month, & men do not like to be beaten. They are all working under the same conditions, & it spurs them up a little. They get all they can out of each pit. We sometimes have three shovels going night & day.

J. DRINKWATER.—How do you load your cable?

A. MCAULEY.—It is necessary to put up mill posts at every station.

J. JELLY.—We put up posts on each side with a pulley & block, & one, of course, is on top of the other, hitched on to the plough or back, & of course the one on the opposite side would swing across to go on top of the car, & in that way we would have only about a car length of cable to handle.

T. GRAHAM.—You pulled straight over your trestle; you were not snubbing.

J. JELLY.—We would be pulling over, yes. We always snub with the tongs right to the rail & the block just across the top of the rail. It is quite safe.

A. MCAULEY.—If you ever used it you would never be without it. If you want to pull 5, 6, 7 or 8 cars you do not have to wait to pull the cable out of the road.

T. GRAHAM.—With a long train your cable would fly off.

J. DRINKWATER.—I am sorry to say that I have not had much experience lately in ballasting. The best way to get your division ballasted, I think I understand pretty well. If there is an appropriation granted covering 3 or 4 divisions & you get started on it in the spring, & you get to the steam shovels, that is the best way to get your division ballasted. Of course, I have not been able to put that into practice this year, & in that way I have not had any experience with the Mill car & shovels, but the Barnhardt shovel, as Mr. McAuley says, has always done good work. I certainly think that wherever it is possible to get a ballast-pit with lots of room in it & in such a shape that the engine will handle a full train it is a great advantage & a great saving.

A. MCAULEY.—It is not always possible to do that.

J. DRINKWATER.—Yes, that is so. The form which Mr. Graham spoke about having filled up, giving the time of the arrival of the train at the pit & the departure therefrom, is certainly an advantage in itself. I am of opinion that it always pays to have a good foreman in the ballast-pit. I think it is money well spent, irrespective of the trainmen and the steam

shovel engineer. In some pits you have to put your shovel back every few days; therefore, I think it is always best to have a good foreman. I have never used the Mill car, but I am pretty well satisfied that it is a great improvement on pulling the cable over the train with the engine. I see with some roads that they have aprons on the cars, but most of them are flimsy affairs. On the Grand Trunk & on the New York & Ottawa, every here & there they were lying alongside the road pulled off.

J. JELLY.—With reference to unloading ballast, I am of the opinion, from my experience, that there is about as much time lost with the unloading as anything else in connection with the handling of ballast. We have a spider plough up west, built during the winter season. Previous to that we always had an awful lot of bother with the ploughs. We had a plough that ran on the centre rail, & the Barnhardt plough, & these ploughs were continually giving out & there you were. You would have to take your plough away to the shops. After we built the spider plough & put good material into it we never had any trouble. I have seen us unload 25 cars there in 12 minutes. I think there is nothing that I have used that is equal to the spider plough, & I think there is as much time saved with the plough as in the pit. Of course I like a good pit, but I think more attention should be given to the plough than anything else.

J. DRINKWATER.—How did you fix the side of your cars?

J. JELLY.—We put 4-inch planks on between stake-pockets & bolted them.

J. DRINKWATER.—You did not spike them?

J. JELLY.—No, we used bolts & put them where they were required.

J. DRINKWATER.—What sized bolts?

J. JELLY.—Three-quarter bolts & 4-in. planks. Of course, it goes a little outside of the pocket. It saves the pocket from being damaged in any way.

F. J. HOLLOWAY.—I have used the Barnhardt shovel & have always found it give satisfaction, & I have always used the Barnhardt plough, which goes around very short curves. It was at all times a great success.

J. JELLY.—Perhaps your ballast would be fine.

F. J. HOLLOWAY.—No.

J. DRINKWATER.—Does the Barnhardt plough clear the cars of coarse gravel?

F. J. HOLLOWAY.—Not coarse gravel. It would leave 2 or 3 ins. on the bottom.

J. DRINKWATER.—That has been my experience with the ploughs that we have had.

J. JELLY.—That is mine, too.

T. GRAHAM.—I think in working the pit a man should always have two ploughs at the pit in case anything happens. In this way you will many a time save a load or two. Then, again, there is something about moving back the shovel. Suppose you have a little pit gang of 3, 4 or 5 to start the track & have it right up close to the shovel, & five minutes after your shovel is there you are on your way back. It saves time.

A. MCAULEY.—You have a double track?

T. GRAHAM.—Yes.

A. MCAULEY.—How do you get your track over the top of the other? Do you throw your track in?

T. GRAHAM.—Yes.

A. MCAULEY.—We do not.

T. GRAHAM.—With this pit gang your work would be right through the minute your shovel is out. I think in putting your shovel in the pit you should have ties & rails enough for a double track. Another thing in favor of a double track is, that without it when the shovel is out your track is away; you have thrown it more or less out of shape, & you have trouble.

A. MCAULEY.—I never have more than 6 to 8 men around the shovel at the pit, & when we go to move the tracks I generally do it after 6 o'clock, so that we are all right the next morning at 7 o'clock.

T. GRAHAM.—If I can get my shovel out I do so, & have her back ready for next morning.

J. DRINKWATER.—I do not remember missing a train of ballast in the last 7 or 8 years on account of moving the shovel. I do not remember having a break in a day's work on account of moving the shovel, that would not have occurred had we not moved it. There are some times that your shovel is idle where you are hauling 60 or 70 miles. With the short hauls it is altogether different. It is difficult to handle trains on a road where there is any considerable amount of traffic on a long haul & have regularity.

J. JELLY.—Circumstances alter cases.

J. DRINKWATER.—I have worked 3 trains on the long haul.

J. GRAHAM.—I used to, when handling ballast pits, shift the track, as Mr. McAuley says. I used to take a gang at 6 or 7 o'clock in the evening, & perhaps work till 12 o'clock at night. But if you do this you do not get as much work out of your lifting gang the next day. Now I follow the shovel right up with a track, that is the best way, & you have better tracks always in the pit. I have just one extra track.

A. MCAULEY.—A double track.

J. GRAHAM.—Yes, you have one to hold your empties, & the other to hold your loads.

T. GRAHAM.—It is not necessary to put in a switch; I never did.

J. GRAHAM.—I always put a switch in.

A. MCAULEY.—I think your shovel men have always got more or less time, & they can always keep the track behind the shovel right along—keep with it, & as occasion will admit they can keep pulling it over.

J. JELLY.—There is something I would like to mention, & that is for spotting the train we never use anything except a team of horses. We have used two teams for spotting the cars. We use one engine for hauling, & one team of horses for spotting. You can spot your cars better than with an engine, because you require only one man there, & once he gets up to do his business there is no trouble. It saves a crew & an engine. There

are very few pits but what you can place them so that you can spot your cars all right.

J. DRINKWATER.—How then do you do for your water?

J. JELLY.—One horse.

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J. DRINKWATER.—The horse draws the water on top of the pit.

J. JELLY.—Yes. We take our empties & ship them back to where they were. It means about 10 minutes.

J. DRINKWATER.—How do you set your loads out?

T. GRAHAM.—We spot them all.

J. DRINKWATER.—You let your empties come in on outer track?

J. JELLY.—Yes.

J. DRINKWATER.—I like the train to come in on inner track at the pit.

J. JELLY.—Where it can be spotted with horses there is a lot of money saved. It is wonderful what a team of horses will spot.

J. DRINKWATER.—Will they move 40 loaded cars?

J. GRAHAM.—This year we have all our ballast cars equipped with air-brakes. It makes quite a difference.

J. DRINKWATER.—One advantage of the Mill car is that you do not use brakes at all.

J. GRAHAM.—We have no ballast cars at all on the ballast trains that are not equipped with air.

THE RENEWAL OF TIES.

The committee, J. R. Brennan, J. Leslie & J. Drinkwater, reported as follows:—

"In our opinion new ties should be distributed the fall previous, if possible (in order to peel easily), or as early in the spring as circumstances will permit. Each section foreman should accompany the tie train when distributing, & should know wherever a tie is

ly & unexpectedly, the best & safest way is to dig them out, particularly on curves. As to the cost per tie, in sand ballast they can be put in track for from 5 to 8 cts., & in coarse gravel for from 8 to 13 cts. Old ties should be piled up daily & burned."

J. JELLY.—I think that covers everything in connection with it. I think the report has been studied out pretty well, & I do not know that I can say very much in connection with it. I like what the report says; I do not like these box cars at all. I am satisfied that it costs three times as much on box cars as on flats. I think we should have, at least, half of our ties distributed every fall; we should have them out before the spring, particularly in the section of country where we get our ties in by water. If we do not get any in until the



TRIPLE-VALVE ROOM IN THE WESTINGHOUSE MANUFACTURING COMPANY'S SHOP, HAMILTON, ONT.

J. JELLY.—It depends upon the location of the pit.

J. DRINKWATER.—If it is level?

J. JELLY.—If it is level, yes. Sometimes in a certain part of the pit we may put two teams. We have taken out 150 cars a day & spotted them with a team, one engine & crew. Of course, the hauls were a little long; we were hauling about 10 miles, & we left at 6 in the morning & got in at 8 or 9 in the evening. If you put on another engine you might take out 175, perhaps 200, cars. I think that spotting with horses saves money.

A. MCAULEY.—150 cars to the shovel for 3 or 4 months is pretty good work.

J. GRAHAM.—You would require to have a pretty good pit.

A. MCAULEY.—Yes.

wanted, & get the required number put off, which, of course, is a rather difficult thing to do from box cars. The next thing in order would be to go along with the lorry & put them just where they are wanted, marking in advance of the lorry the ties that are to come out, being careful not to damage a tie that would not have to be taken out. As to the best method of putting them in, where 5 or 6 are required to a rail length, it would be best to dig them out. Any more than this number to a rail length, it would be well to raise up the rail to allow them to be pulled out, or if there is sufficient ballast to give a lift of 1 1/2 inches. This would allow old ones to come out easily, & new ones to go in with little or no deepening. This, of course, would depend on circumstances. Where trains are running thick-

spring we are liable to have them coming in in Aug. & Sept., & in fact we are getting them yet. If you get ties as late as this you never get a good surface. I think that ties should all be in early in June every year, & by that time it is time to start surfacing & have it all done by the end of July. In that way you have a pretty good track, whereas in the fall you cannot get a good track. I think it would be a great saving. Our Company got a few ties last year, but most of them have been coming all summer. I suppose in some places they have not got them yet.

J. GRAHAM.—I am sorry to say that the C. P.R. is not the only road in getting ties out late this season. This is the first season we were so late. We generally had our ties scattered in May & there might be a few in

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1882	1,134	12,058 86	2,967 93	2 61	11.00
1883	2,210	9,493 68	10,857 65	4 91	4.73
1884	2,558	13,914 31	23,081 85	9 01	4.23
1885	3,642	26,576 99	29,802 42	8 18	7.76
1886	5,804	28,499 82	53,981 28	9 30	4.85
1887	7,811	59,014 67	81,384 41	10 44	5.78
1888	11,800	89,018 16	117,821 96	9 98	6.43
1889	17,349	116,787 82	188,130 36	10 84	5.85
1890	21,604	181,846 79	283,967 20	11 54	5.18
1891	32,303	261,436 21	408,798 20	12 65	6.40
1892	43,024	344,748 82	580,597 85	13 49	6.25
1893	54,484	392,185 93	858,857 89	15 76	5.47
1894	70,055	511,162 30	1,187,525 11	16 94	5.47
1895	86,521	685,000 18	1,560,733 46	18 03	5.67
1896	102,838	820,941 91	2,015,484 38	19 60	5.50
1897	124,685	992,225 60	2,558,832 78	20 52	5.56
1898	144,000	1,176,125 14	3,186,370 36	22 12	5.67
1899	163,610	1,430,200 33	3,778,543 58	23 09	6.30

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June. I think ties should be all scattered with an extra train. It is a big expense to the track department to distribute ties on way freights.

J. JELLY.—In Aug. you cannot put more than two-thirds what you can put in in May.

J. GRAHAM.—My opinion is that all ties should be in by the last of July.

T. GRAHAM.—Our company always distributes the ties in the fall, and in that way we get a start early in the season. I think that all ties should be distributed in April, if possible, or earlier if you can. The plan of having ties coming in every month of the year, or perhaps in Sept. or Oct. getting more ties than in May or June, I believe, leaves a poor track. About loading cars in boxes, I think if the officials were put into box cars & had to unload a few cars there would be an opportunity of having flats, & then again, I think they ought to be put on an extra train. Most of our ties this year were chucked out with way freights, & it has delayed the train & always delayed the men, & it is a loss of time.

F. J. HOLLOWAY.—All I can say is that it would be impossible to burn the ties every day.

J. DRINKWATER.—I added that myself to the report after I had received it from Messrs. Leslie & Brennan. It is a part of the report that I have had considerable experience in the last year, & so far as I have been able to establish the facts, the ties will burn better the day you pile them up than they will a month afterwards. If the ties are left a couple of weeks just as you pile them they will not burn so well as when first piled.

J. JELLY.—You think the earlier part of the season, in the summer, the best time?

J. DRINKWATER.—It depends upon the weather. The ties that come out to-day should be burnt to-morrow; I think you should insist on the men doing it. If you are going to have the right of way nice & tidy you cannot do it without time & labor. I think that ties can be taken out to-day & burned to-morrow: I am pretty well satisfied that it can be done.

J. JELLY.—I think that will apply all right in dry weather.

J. DRINKWATER.—My experience is that if you leave them for ten days or a week they are not burnt at all. You have to lay down some rule, & it has to be pretty nearly cast-iron to get the ties burned & out of the way.

T. GRAHAM.—I think old ties should not be left more than 3 or 4 days at most before burning them. If you keep them close together I think you can burn them just as well & even better.

J. JELLY.—Would you make a particular sized pile of ties?

J. DRINKWATER.—A pretty good-sized pile, say 25, or 30 or 40, when you have them on the lorries.

T. GRAHAM.—I think it just as well to have 40, or perhaps 50.

J. DRINKWATER.—It will take a man as long to set fire to 5 ties as to 50.

J. GRAHAM.—My experience with old ties is that it is best to pile them up every Saturday afternoon. Take the ties that have been taken out during the week, & take Saturday afternoon to pile them up & then you can burn them without any trouble.

J. JELLY.—My experience is that if you leave them for a week they will not burn. If a person piles them up every night it is a change of work, & I believe that is done with very little extra work.

J. DRINKWATER.—Is piling old ties not the heaviest work we have?

J. JELLY.—Yes, & if it is done every night you do not get so much hard work.

J. DRINKWATER.—At one time.

J. JELLY.—Yes.

T. GRAHAM.—How would it do to pile them up the first thing in the morning & set fire to them?

J. DRINKWATER.—That might do.

T. GRAHAM.—The men are fresh then & not so tired.

J. DRINKWATER.—They might be so tired afterwards that they would be no good all day.

T. GRAHAM.—The Forestry Act in our section is very stringent. We can only burn them at certain times, but I believe the best way is to pile them up every day.

J. DRINKWATER.—There is nothing pretty about an old tie, at any rate. In taking out ties you have to shift the old ties sideways?

T. GRAHAM.—Well, not much.

J. DRINKWATER.—How do you do it, Mr. Jelly?

J. JELLY.—We shift the tie over & use a bar to shift it sideways. We may ease the rail a little bit, but between Ottawa & Carleton Place you cannot take up a rail at all.

J. DRINKWATER.—We never think of raising the rail enough to let old ties out.

J. JELLY.—We never do.

J. DRINKWATER.—This last 5 or 6 years I have been using about a ½ in. shim.

A. MCAULEY.—No matter how little you raise the rail it is hard on the rail.

J. DRINKWATER.—I have never put a new tie in & packed it up to the rail and have it stay right.

J. JELLY.—Some foremen will take out ties that are good for another year, while others will leave in those which should come out this year.

J. DRINKWATER.—The only object of some foremen seems to be to get rid of all the new ties. What does it cost to peel ties?

F. J. HOLLOWAY.—A cent & a half apiece; that is my experience.

J. JELLY.—It depends a great deal upon the season of the year.

F. J. HOLLOWAY.—I had a lot of extra work, something like 100,000 ties, & I put it at a cent & a half.

J. GRAHAM.—Hemlock or cedar?

F. J. HOLLOWAY.—Mixed.

J. JELLY.—I find that if they are peeled after they come out of the water it is the best time, or else after a rain.

A. MCAULEY.—I peeled 50,000, & I found that one man would peel 105 a day, & that cost \$1.25. We used a shovel, which peeled the bark well off; it is better than any axe you can get.

J. JELLY.—When it gets well along in the year you cannot peel them well with a shovel. We use what we call a spud, but I would rather have a shovel.

A. MCAULEY.—I think the ties should be peeled before they are delivered.

J. DRINKWATER.—I think you would get a better class of ties. I think if you peeled 10,000 or 15,000 ties you would be able to go over them & pick out some of them that would be very small looking.

J. R. BRENNAN.—The New York Central have theirs peeled at the mill.

J. GRAHAM.—It will cost more to peel cedar than hemlock?

J. DRINKWATER.—Yes.

J. JELLY.—I think it costs about a quarter more to peel a cedar tie than it does to peel hemlock.

The report was adopted.

HAMILTON CHOSEN FOR 1901.

THE CHAIRMAN.—The next thing is as to where our next meeting will be held & when.

A. MCAULEY.—It seems to me that Montreal is the most central point, certainly as far as the C.P.R. is concerned. For my part, I would like to see it in Toronto. I think our turnout is very small. I think the roadmasters should take more interest in the work, & be able to come here & give us their views. It is a good holiday to meet once a year. I therefore move that the next meeting be held in Toronto.

J. JELLY.—If there was a change of meeting-place to bring in anyone else I think it would be a good idea. If you can move where those that will come will follow you let us meet there. We met last year in Toronto, & the previous year in Ottawa, & now in Montreal.

J. DRINKWATER.—This is the best meeting we have had yet.

THE CHAIRMAN.—I think Hamilton would be a very good place. There are a lot of roadmasters there.

J. JELLY.—I suppose that we will follow them there.

THE CHAIRMAN.—We have no one here from the I.C.R., or from the Grand Trunk. Last year in Toronto we had a general roadmaster of the G.T.R.

A. MCAULEY.—I will amend my motion by moving that we meet in Hamilton on Oct. 16, 1901.

This was seconded by F. J. Holloway, & carried unanimously.

A. MCAULEY, F. J. Holloway & the Editor of THE RAILWAY AND SHIPPING WORLD were appointed a committee to make the local arrangements for the Hamilton Convention.

J. JELLY.—Roadmaster Kelly told me the other day that circumstances would prevent him from being present with us, & asked me to apologize for him.

SUBJECTS FOR NEXT YEAR.

THE CHAIRMAN.—The meeting is now open for discussion as to the subjects for our next annual meeting. It will be necessary to couple with the suggestion of each subject the names for the committee.

The following subjects were selected:—

The best mode of relaying track, & whether with broken or square joints. Committee, A. McAuley, T. Hickey & N. Delaire.

The creeping of rails, & why the rail travels further on one side than on the other, so as to allow one side to run past the other, making the joints uneven. Committee, F. J. Holloway, J. R. Brennan & J. Malloy.

THE OFFICIAL ORGAN.

A proposition having been submitted from the publisher of THE RAILWAY AND SHIPPING WORLD, it was resolved, on motion of A. McAuley & J. Jelly, that the same be accepted, & that the Secretary be authorized to have the paper supplied regularly to all members of the Association in good standing, & to pay therefor out of the Association's funds.

VOTES OF THANKS.

J. DRINKWATER.—Before we close I would like to move a vote of thanks to our retiring President for the able manner in which he has filled his office since being elected.

J. JELLY.—I have much pleasure in seconding the motion.

THE CHAIRMAN.—I thank you, gentlemen, for the honor conferred upon me as President. However, I am sorry that I could not do more for the Association. I would like to see it grow in numbers, & have a better attendance at our annual meetings. I think that those who have kept away from it are missing a great deal.

J. JELLY.—I wish to move a vote of thanks to our Secretary-Treasurer for the energetic way in which he has worked for the Association since it was started.

T. GRAHAM.—I have great pleasure in seconding the motion.

J. DRINKWATER.—I thank you, gentlemen, for the way in which you have tendered me this vote of thanks. When I first took the Secretaryship of the Association I had great aspirations—I thought I would do great things, but my time is pretty well occupied with my regular work. However, I have given all the time I could without interfering with my work; I have done the best I could, & you have shown your appreciation by re-electing me.

J. JELLY.—I beg to move a vote of thanks to the Track Supply Association for the drive which they propose to give us this afternoon, & also for entertaining us at Her Majesty's Theatre last evening. This was seconded by J. R. Brennan, & carried.

THE CHAIRMAN.—Gentlemen, we have now come to the end of our programme. I trust that not a few of us will be able to turn to practical account some of the valuable suggestions which we have received. I hope that we shall all go away from this convention resolved to do all that we can to benefit our Association, to tell those other roadmasters who are not members of the help to be obtained from our conventions, & I am sure if we all do our best in this respect the coming year, our next convention will even surpass those we have already held.

EXHIBITS OF TRACK SUPPLIES, ETC.

The following exhibits were displayed in a room opening out from the one in which the Association met:

A. O. Norton, Coaticook, Que. Exhibits, ball-bearing bridge jacks & sure-drop track jacks.

The Page Wire Fence Co., Walkerville, Ont., represented by Merton Church. Exhibits, wire fencing, including the Page coiled-spring wire.

F. E. Came, Montreal. Exhibits, Bryant portable rail saw; Servis, Q. & W., & Wolhaupter tie plates; Samson rail bender, continuous rail joints, U. S. car pusher.

The Ramapo, Iron Works, Hilburn, N.Y., represented by R. J. Davidson. Exhibit, automatic switch & stand.

Dilworth, Porter & Co., Pittsburg, Pa., represented by A. Morrison. Exhibit, Glendon flange & Goldie tie plates & spikes.

Montreal Rolling Mills Co., Montreal. Exhibit, 100-lbs. rails, connected by Bonzano patent rail joint.

Crozier Lock Washer Co., Roanoke, Va. Exhibit, nut lock.

SOCIAL FEATURES OF THE CONVENTION.

On the evening of Oct. 17, the members of the Association, several of whom were accompanied by their wives, were the guests of the

Track Supply Association at Her Majesty's theatre, where "Jane Eyre" was put on the boards. On the afternoon of Oct. 18, they were entertained to a drive around the city, visiting some of the noted churches & other buildings & also Mount Royal.

TRACK SUPPLY ASSOCIATION.

The second annual meeting of the Track

Supply Association was held at the Windsor Hotel, Montreal, Oct 18.

The following officers were unanimously elected: President, F. E. Came, Montreal; First Vice-President, R. J. Davidson, Hilburn, N.Y.; Second Vice-President, A. O. Norton, Coaticook, Que.; Honorary Secretary-Treasurer, Acton Burrows, 33 Melinda St. Toronto.

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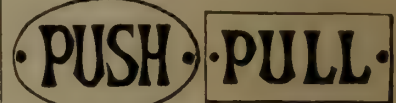
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Rebuilding Niagara's Cantilever.

By O. E. Dunlap.

Determined that its bridges shall be fully able to meet all the requirements of modern railroading, the Michigan Central R.R. is reconstructing its famous cantilever bridge over the Niagara gorge. This bridge was erected in 1883, & its building has gone down in history as one of the great engineering feats of that year. It was commenced about the middle of April, & it was completed by Dec. 1 following. When it was tested on Dec. 20, 1883, two trains, each containing 10 locomotives & 12 loaded platform cars, were run over the structure. The cantilever bridge is a double-track affair, & it stood the test without any signs of weakness. When these two trains were on the bridge, the whistles of all the locomotives broke forth at once, announcing the success of the test & the acceptance of the bridge. Then it was thought the structure would meet all demand likely to be made upon it during that generation, but in the 17 years that have gone by there have been numerous changes in railway methods & equipment. Then a car containing 20,000 lbs. was a big car; to-day there are cars that carry 60,000 & even 80,000 lbs. At the same time the hauling capacity & the weight of locomotives have been on the increase, so that there has been a general revolution of capacity & haulage on all the great railways throughout the country, & consequently the strains upon the bridges have been proportionately increased.

It is understood that the Niagara cantilever was the second bridge of the kind erected in the U. S. It spans the gorge right at the head of the whirlpool rapids, 300 ft. above the lower or railway steel arch. In length the cantilever is 910 ft. It is divided into 2 cantilever arms & a fixed span. One cantilever arm is 375 ft. long, & the other 395, while the fixed span has a length of 125 ft. The cantilever arms rest upon the towers that rise from the water's edge on each side of the river. These towers are about 130 ft. high. The total weight, supposed to rest on the columns of the towers, is about 1,600 tons, & the distance across the river, from tower to tower, is in the neighborhood of 500 ft. The shore ends of the cantilevers are held firmly by stone abutments erected at the edge of the high bank. The deck of the bridge is 200 ft. above the water. When the bridge was built huge false work structures were used, the work progressing from the shore ends & finishing in the center.

In the general rebuilding & strengthening

of bridges throughout the country it is very probable that no structure has received such novel treatment as the M.C.'s cantilever. The bridge was not to be wholly replaced by a new structure, but the magnitude of the work undertaken required that unusual means be employed to strengthen it. These conditions have been nicely and successfully met by the M.C. engineering force in Detroit, of which B. Douglas is the head. The work of reconstruction consists of inserting a center truss in the structure, & by this means the carrying capacity of the bridge will be increased 75%. In all over 1,800 tons of new iron have been

up to the point where the bottom chord of the new truss is located. The piece of bottom chord placed between the columns of the towers weighs about 14 tons, & on each end of it there is a 7-ton casting that connects the section of chord into the tower. Stretching up from this casting there is a section of iron 55 ft. long, & this extends to the top chord of the new truss. On top of this leg there is a 6-ton casting to connect the top chord to the tower. All the iron parts placed in the new truss are about three times heavier than the iron in the old trusses. In the further construction of the new truss sections of the bottom chord were let down, & they were followed by posts to make the connection between the upper & lower chords. The sections of the bottom chord weigh about 15 tons, while the weight of the posts is from 6 to 9 tons. In this way the new truss has been added to the bridge, forming a new bond between the U.S. & Canada.

Some of the new iron was unloaded on the New York side & some on the Canadian side, & the several parts were run out on the bridge on a small car. On the deck of the bridge there is erected a travelling derrick that is 28 ft. long, 28 ft. wide in the clear, 21 ft. clear of track, & 30 ft. high. On each side it has a platform on which are friction engines with 2 winches. This derrick is equipped with 10-ton blocks, & in order to lower the castings over 3,500 ft. of 1 1/2-inch manilla line was used. In order that the iron might be lowered to the point where it was designed to fit, the method was employed of cutting off the ends of the ties between the double tracks, & by this means an opening 6 ft. wide, by 11 ft. long between the laterals was obtained. Through such openings all the iron was lowered. Some of the pieces of iron placed were over 50 ft. long, & on the occasion of lowering these long pieces it was found necessary to move the traveller forward in order that the iron might be tipped up. This moving of the traveller was accomplished by men manning a line on each side.

On each side of the river, between the tower & the cliff, there is a shore arm of the upper chord. These shore arms are about 53 ft. long, & each weighs 28 tons. In the bridge, as originally built, the laterals were about 30 ft. long and stretched from one post to another across the bridge at an angle. In the new construction the laterals extend from the outer posts to the new center posts. New suspension bars were put in, & they carry from the top of one post to the base of the adjoining tie bar. These bars vary in size.

One of the interesting feats accomplished during the progress of the work was the severing of some of the huge steel floor beams in



W. H. KELSON,

General Storekeeper, Canadian Pacific Railway.

placed in the bridge, & a remarkable fact is that this has been accomplished without changing the outward appearance of the bridge.

When it was decided to insert the new truss, 2 new piers of substantial masonry were built between the old piers on each side of the river. On top of the piers steel shoes weighing 10 tons each were placed, & from these shoes new center columns were built up through the towers. On top of these shoes 5 sections of steel, weighing about 12 tons to a section, & each 25 ft. long, were erected. This brought the new columns of the towers

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PRESIDENT, M. McNamara, Walkerton, Ont.; 3rd
VICE-PRESIDENT, W. H. C. MacKay, St. John, N.B.;
SEC. TREAS., E. de la Houcke, London, Ont.; AUDITOR,
S. H. Palmer, St. Thomas, Ont.

EXECUTIVE COMMITTEE, W. H. Harper, Chatham,
Ont.; C. E. Morgan, Hamilton, Ont.; T. Long, Port
Hope, Ont.; W. F. Egg, Montreal; J. P. Hanley
Kingston, Ont.

NEXT ANNUAL MEETING at Montreal in 1901.
OFFICIAL ORGAN.—THE RAILWAY & SHIPPING WORLD,
Toronto.

National Association Marine Engineers of Canada.

HONORARY PRESIDENT, O. P. St. John, Toronto;
PRES., A. J. Woodward, Toronto; 1st VICE-PRES., R.
Craig, Toronto; 2nd VICE-PRES., E. Abbey, Toronto.

COUNCIL, W. Jamison, Windsor, Ont.; J. Payne, Col-
lingwood, Ont.; O. Flummerfelt, St. Catharines, Ont.;
J. Currie & S. T. Wilson, Toronto.

TREASURER, H. Brownley, Toronto; SECRETARY, S.
A. Mills, Toronto.

Track Supply Association.

PRESIDENT.—F. E. Came, Montreal.
FIRST VICE-PRESIDENT.—R. J. Davidson, Hillburn,
N. Y.

SECOND VICE-PRESIDENT.—A. O. Norton, Coaticook,
Que.

HON. SECRETARY-TREASURER.—Acton Burrows, 33
Melinda Street, Toronto.

NEXT ANNUAL MEETING at Hamilton, Oct. 16, 1901.

Back Numbers for Sale.

THE RAILWAY AND SHIPPING WORLD:

March to December, 1898, price.....\$1.00

January to December, 1899, " 1.25

January to December, 1900, " 1.10
including postage.

Address

THE RAILWAY AND SHIPPING WORLD,
33 Melinda St., Toronto, Canada.

SUPERINTENDENT OF TELEGRAPHS

Wanted: One capable of assuming entire control of
construction and maintenance of telegraph lines, and
direction of the telegraph business of a Canadian com-
pany. Must be competent electrician.

Address:—Box 463, RAILWAY AND SHIPPING WORLD,
33 Melinda Street, Toronto.

CAR ACCOUNTANT WANTED

to take entire charge of car accounting on a
new road.

Address:—Box 464, RAILWAY AND SHIP-
PING WORLD, 33 Melinda Street, Toronto.

First-Class Railroad Superintendent.

Wanted to assume charge of a section of a Canadian
railroad, part of which is now being constructed. Must
have office training in addition to practical knowledge of
transportation service, and maintenance of roadbed and
structures.

Address:—Box 462, RAILWAY AND SHIPPING WORLD,
33 Melinda Street, Toronto.

order that the new iron might be given proper
place. From the floor beams referred to,
sections 2 ft. 2 in. wide were cut. This cut-
ting was done by drilling holes through the
iron, close together, & then cutting out the
intersections. While this was going on the
floor beam under treatment was supported by
timbers that rested on the outer trusses.

When the cantilever bridge was erected in
1883, the use of compressed air for the opera-
tion of drills, etc., was quite unknown, but in
the years that have elapsed the steps of pro-
gress in its application have been notable. All
the riveting on the original bridge was done
by hand, but on the new work the service of
compressed air has been brought into play
for riveting, drilling & chipping. The plant
that supplies the power is located on the New
York bank under the approach to the bridge
proper. In it there is one 12 h.-p. & one 24
h.-p. gasoline engine. Of the other apparatus
there is in use on the work a piston air drill, a
"Little Giant" drill, two long-stroke pneu-
matic hammers & one 000 pneumatic hammer.
From the compressor plant a 2-in. service
main is run across the bridge, & from this
hose connections are made to the point of ap-
plication or use.

Of course, the reconstruction of the bridge
to this extent called for a reinforcement of the
anchorage. The original anchorages were
about 26 ft. long & ran down to the bottom of
the masonry abutment at the edge of the high
bank. To provide additional anchorage the
side of the abutment was opened, & a hole 16
ft. deep made in the solid rock under the
abutment. At the bottom of this excavation
cupboards were opened about 7 ft. wide & 12
ft. long. In these 7 I-beams, each weighing

900 lbs., were placed & the anchor bars car-
ried down to them, making the total depth
about 40 ft. The opening was then filled
with concrete.

The work on the reconstruction of the can-
tilever has been carried on without interfering
with the regular traffic over the structure, &
it is expected that it will be completed by Jan.
1, 1901.

D. Coughlin is the superintendent in charge
of the work. He has had a very extended ex-
perience in bridge building during the last 35
years. For 10 years he was with the Lake
Shore road, & for the last 11 years he has
been employed by the Michigan Central. He
it was who, when the Ashtabula bridge disaster
occurred, threw up 2 spans of the Howe truss
wooden bridge over the wreck in 8½ days,
each span being 157 ft. long, & the height
above the water being a little over 84 ft. The
assistant engineer in charge of the work is G.
C. Tuthill, of Detroit.—Modern Machinery.

Grand Trunk Subsidiary Companies.

The following annual reports for 1899 have
recently been issued:—

CHICAGO & GRAND TRUNK RAILWAY.

Consequent upon the maturity of the 1st
mortgage bonds the necessity for a re-organi-
zation of the capital of the Co. upon a per-
manently sound basis was intimated to holders
of the 1st & 2nd mortgage bonds by circular
letter of the President, October 17, 1899. The
plan of re-organization therein, set forth has
been accepted by all interests with the modi-
fication that the 2nd mortgage bond-holders
are to get the 25% reduction that was made
in their bonds, in 50 year 4% income bonds,
the re-organized Co. retaining the right to
purchase the said bonds any time within 10
years at 85c. on the dollar. In this connec-
tion the G.T.R. Co. has undertaken to make
its traffic guarantee of 1st mortgage bond in-
terest absolute & unconditional.

There having been no resources for the
satisfaction of the 1st mortgage bonds at ma-
turity, Jan. 1, 1900, application was made to
the Circuit Court of the U.S. for protection,
& E. W. Meddaugh & H. B. Joy were ap-
pointed receivers, which office they have ex-
ercised since Jan. 3, 1900.

The leases of the Cincinnati, Saginaw &
Mackinaw, & Toledo, Saginaw & Muskegon
lines having proved detrimental to the inter-
ests of this Co., as shown by the Special
Master who reported upon those connections
under date of June 28, 1900, were abandoned
from July 1, 1900, as regards this Co.

There being now no complications affecting
the title of the property as held by the Court,
the requisite procedure for its release is in
progress.

The gross receipts, working expenses, net
revenue & net revenue charges for the year
compared with 1898, were:

1898		1899
\$ 843,223.87	Passengers.....	\$ 987,778.80
129,495.72	Mails & express.....	137,130.87
2,673,652.72	Freight & live stock.....	2,769,415.06
3,346.49	Miscellaneous receipts.....	5,686.33
\$3,649,718.80	Total gross receipts.....	\$3,900,011.06
2,890,297.27	Working expenses & taxes..	3,287,964.24
\$ 759,421.53	Net revenue.....	\$ 612,046.82
871,100.08	Net revenue charges includ- ing interest on bonds.....	883,041.68
111,678.55	Paid by G.T.R. under traffic agreements.....	270,994.86
435,175.53	Net revenue deficiency carried forward from Dec. 31, 1896.	435,175.53

The passenger receipts, including mails &
express, amounted to.....\$1,124,909.67
Against.....972,719.59

An increase of.....\$ 152,190.08
of which mails & express contributed \$7,635.15.

The average earnings per passenger per
mile were .79 against .73 cents, & there were
carried 1,242,545 passengers against 1,161,-
094, an increase of 81,451.

Canadian Weekly



MICHIGAN CENTRAL RY. CANTILEVER BRIDGE, NIAGARA FALLS, ONT.

The receipts from merchandise traffic amounted to :

Against.....	\$2,769,415.06	for	2,535,821 tons.
	2,673,652.72	for	2,111,884 "

An increase of 95,762.34 or 3.58%, 423,937 "

The receipts per ton were \$1.09 against \$1.27, & the yield per ton per mile $\frac{3.2}{100}$ ths. of a cent, against $\frac{5.8}{100}$ ths. of a cent.

The working expenses, including taxes, amounted to :

\$3,287,964.24 or 84.31% of the gross receipts.
Against 2,890,297.27 or 79.19% of the gross receipts.
Showing an increase of \$397,666.97 or 13.76% against an increase in the gross receipts of 6.86%.
The total engine miles were 4,145,166 against 3,882,199.
The total car miles were 71,210,706, against 66,041,655.

The deficiency of net revenue to meet interest charges was \$270,994.86, against \$111,678.55, & the G. T. Co. contributed the required amount in terms of the traffic agreements, taking security as usual.

The capital account & balance sheet of the Co. at Dec. 31, 1899, are as follows :

CAPITAL ACCOUNT.	
Capital Stock. (66,000 shares at \$100 each). \$	6,600,000.00
First Mortgage Bonds dated 1st Jan., 1880, due 1st Jan., 1900, (interest 6% per annum, payable 1st Jan. & 1st July).....	\$6,000,000
Second Mort. Bonds dated 1st Jan., 1882, due 1st Jan., 1922, (interest 5% per annum, payable 1st Jan. & 1st July).....	6,000,000
Balance overspent carried to General Balances.....	12,000,000.00
	960,204.49
Cost of line & rolling stock.....	\$19,560,204.49

BALANCE SHEET.	
Interest accrued on bonds.....	\$ 216,643.59
Sundry outstanding accounts due by the Co. G. T. R. Co. advances under traffic agreements.....	1,393,816.64
Toledo, Saginaw & Muskegon Ry. interest coupons held for advances under traffic agreement.....	3,478,329.52
Cincinnati, Saginaw & Mackinaw R. R. Co., ditto.....	146,699.40
	157,827.99
	\$5,393,317.14

Balance of capital account (brought down). \$	960,204.49
Balance of net revenue account (a deficit)...	435,175.53
Cash in hands of London agency.....	1,397.59
Securities on hand.....	134,000.00
Sundry assets.....	79,682.62
G. T. R. Co's interest coupons pledged as security for advances under traffic agreements.....	3,478,329.52
Toledo, Saginaw & Muskegon Ry. Co. for advances under traffic agreement.....	146,699.40
Cin., Saginaw & Mack. R. R. Co., ditto....	157,827.99
	\$5,393,317.14

The Chicago & Western Indiana & Belt railways were again operated to advantage. The former paid dividends at the usual rate of 6% per annum, the latter paying 6% per annum for the first half, & 8% per annum for the last half of the year.

The Toledo, Saginaw & Muskegon Ry. accounts show net revenue for the year of \$25,189,89, against \$23,837.57 for 1898. The interest on the bonds of that Co. amounted to \$83,100, towards which this Co. paid \$12,806.20 under the traffic agreement.

The Cincinnati, Saginaw & Mackinaw R. R. accounts show a net revenue of \$40,062.91, against \$26,509.77 for 1898. The interest on the bonds of that Co. amounted to \$86,450, towards which this Co. paid \$21,227.56 under the traffic agreement.

GRAND TRUNK JUNCTION RAILWAY CO.

The debt of this Co. for expenditure in excess of its capital powers, being the cost of additional facilities for the C. & G. T. R. Co., under agreement of Nov. 16th, 1885, last reported & now standing at \$223,246.80, has been transferred to the G. T. R. Co. for settlement in connection with the re-organization of the C. & G. T. Co.'s capital accounts.

Both the Chicago & Western Indiana & Belt companies paid regular dividends, the former at the rate of 6% per annum, & the latter at the rates of 6 & 8% per annum respectively for each half of the year, your Co.'s proportions having been applied towards payment of the bond interest through the C. & G. T. Co. in the usual course.

The Atchison, Topeka & Santa Fe Co. continue to satisfactorily carry out its rental engagements.

DETROIT, GRAND HAVEN AND MILWAUKEE RY. CO.

No charges have been made against capital during the year.

The gross receipts, working expenses, net

revenue & net revenue charges for the year, compared with the previous year were:—

1898.	Gross Receipts.	1899.
\$368,043.00	From passengers.....	\$400,433.77
495,909.82	" freight & live stock....	536,623.74
51,199.63	" mails & express freight..	59,960.16
23,079.85	" miscellaneous receipts..	14,858.32
\$938,232.30	Total gross receipts.....	\$1,002,875.99
699,872.93	Working expenses & taxes...	724,709.59
\$238,359.37	Net revenue.....	\$278,166.40
365,686.45	Interest on bonds, &c.....	362,261.06
\$127,327.08	Deficiency.....	\$84,094.66

The deficiency was paid each ½-year by the G. T. R. Co. of Canada, successor of the Great Western Ry. Co. of Canada, according to guaranties of the latter Co.

There was an increase of 63,672 in the number of passengers, & of \$32,390.77 in the passenger receipts, compared with 1898. The travel between Detroit, Royal Oak, Birmingham & Pontiac decreased 17,474 passengers, & \$3,502.64 in the passenger receipts, owing to the continued competition of the electric railway. The average receipts per passenger were 63.29c. against 63.87, the average rate per passenger per mile 2.11c. being the same as in 1898, the average receipts per passenger train mile 85.98c. against 71.31, & the passengers carried one mile 18,702,990 against 16,924,194.

The freight receipts increased \$40,713.92, & the number of tons 76,446. The local & through tonnage compare as follows:

	TOTAL.		THROUGH.		LOCAL.	
	West Bound.	East Bound.	West Bound.	East Bound.	West Bound.	East Bound.
1899.....	232,748	477,786	12,718	91,490	220,030	386,296
1898.....	211,117	422,971	8,380	96,371	202,737	326,600
Increase.....	21,631	54,815	4,338	4,881	17,293	59,696
Decrease.....						

The increased tonnage was principally in grain, 15,594 tons; flour, 9,857 tons; mill products other than flour, 12,803 tons, & ores 19,618 tons; the principal decreases being



MICHIGAN CENTRAL RY. CANTILEVER BRIDGE, NIAGARA FALLS, ONT.

The Railway and Steamship Folder Display Co.,

with which are incorporated

The National Railway and Steamship Advertising Co. of Canada.
The Railway Folder Advertising Co. of Ontario, Ltd.
Joseph Simpson's Railway and Steamship Advertising Agency

Head Office = 16 Manchester Building, Melinda Street, Toronto, Canada.

Branch and Distributing Office,—111 Union Station, Toronto.

The Company undertakes the display and distribution of railway, steamship, land, exhibition, hotel and other advertising folders, maps, hangers, calendars, posters, pamphlets, etc., throughout the whole of Canada and Newfoundland,

By distributing them to railway and steamship ticket agents, hotels, etc.

By displaying folders in racks in stations, ticket offices, hotels, etc.

The Company's distribution lists, which are copyrighted, are official and up-to-date, and are periodically revised by the general passenger departments of the various transportation lines. They are the only complete lists of Canadian ticket agents in existence.

For convenience in operation the Company's system is divided into five districts, as follows :

1. The Province of Ontario.
2. The Province of Quebec.
3. The Provinces of New Brunswick, Nova Scotia and Prince Edward Island and Newfoundland.
4. The Province of Manitoba and the Northwest Territories.
5. The Province of British Columbia.

The Company makes contracts for the display and distribution of matter in any or the whole of these districts, and invites enquiries for terms and full particulars of the service.

LIST OF RAILWAYS COVERED.

The Company's distribution embraces all ticket agents on the following railways in Canada and Newfoundland :

Alberta Ry. & Coal Co.	Elgin & Havelock.	New York Central & H. R.
Albert Southern.	Esquimaux & Nanaimo.	Niagara, St. Catharines & Toronto.
Atlantic & Lake Superior.	Grand Trunk.	Northern Pacific.
Bay of Quinte.	Great Northern of Canada.	Nova Scotia Steel Co.
Boston & Maine.	Great Northern, U.S.A.	Orford Mountain.
Brockville, Westport & Sault Ste. Marie.	Hampton & St. Martin.	Ottawa & Gatineau.
Buctouche & Moncton.	Irondale, Bancroft & Ottawa.	Pontiac Pacific Junction.
Canada Atlantic.	Kent Northern.	Prince Edward Island.
Canada Coals & Ry. Co.	Kingston & Pembroke.	Quebec Central.
Canada Eastern.	Kootenay Ry. & Nav. Co.	Quebec & Lake St. John.
Canadian Northern.	L'Assomption.	Quebec Southern.
Canadian Pacific.	Lake Erie & Detroit River.	Salisbury & Harvey.
Caraquet.	Lotbiniere & Megantic.	Shore Line, N. B.
Carillon & Grenville.	Maine Central.	Spokane Falls & Northern.
Central Ontario.	Michigan Central.	Sydney & Louisburg.
Central of New Brunswick.	Midland of Nova Scotia.	South Shore, Que.
Central of Nova Scotia.	Montford & Gatineau Colonization.	Temiscouata.
Central Vermont.	Nelson & Fort Sheppard.	Tilsonburg, Lake Erie & Pacific.
Cumberland Ry. & Coal Co.	New Brunswick & P.E.I.	Thousand Islands.
Dominion Atlantic.	Newfoundland.	Toronto, Hamilton & Buffalo.
	New York & Ottawa.	Victoria & Sidney, B.C.

stone, sand, &c., 7,048 tons; anthracite coal, 6,397 tons; ice, 4,037 tons, & live stock, 2,567 tons. There were 31,000 tons of grain from Milwaukee against 27,901 tons in 1898. The rate per ton per mile on all freight was 1.23c., against 1.28, & the freight receipts per train mile \$1.53.60 against \$1.33.83; the freight tons moved one mile being 43,583,442 against 39,056,704. The decrease in miscellaneous receipts is caused by a re-arrangement of receipts & expenses.

The working expenses, including taxes, were 72.26% of the gross receipts, against 74.60% for 1898.

	1899.	1898.
Passenger train mileage.....	524,839	472,983
Freight & mixed train mileage.....	349,512	400,836
Total train mileage earning revenue	874,351	873,819
Piloting, shunting, & light running engine miles.....	306,052	254,124
Total traffic engine miles.....	1,180,403	1,127,943
Passenger car miles.....	2,329,092	2,114,763
Freight ".....	6,888,849	6,373,093
Total.....	9,217,941	8,487,856

Referring to the report for 1897 & 1898, the breaking up of old locomotives & cars, & their replacement, is still in hand.

The capital account & balance sheet of the Co. at Dec. 31, 1899, are as follows:

CAPITAL ACCOUNT.	
By 30,000 shares at \$50 each.....	\$1,500,000 00
" Equipment mortgage bonds dated Nov. 14, 1878, due Nov. 14, 1918, interest 6% per annum payable April 1, & Oct. 1.....	\$2,000,000
" Consolidated mortgage bonds dated Nov. 15, 1878, due Nov. 15, 1918, interest 6% per annum payable April 1, & Oct. 1.....	3,200,000 00
" Amount borrowed under mortgage on land at Detroit, & bond.....	226,000 00
" Balance carried down.....	138,234 67
	\$7,064,234 67
To cost of the line & rolling stock at Dec. 31, 1898.....	\$7,065,492 33
Deduct amount received from city of Detroit, for land taken to open Warren Avenue, less amount paid city.....	1,257 66
	\$7,064,234 67

BALANCE SHEET.	
By balance of capital account, being over-expenditure at Dec. 31, 1899.....	\$138,234 67
" Cash in hand at London agency.....	6,208 80
" Sundry assets.....	9,121 56
" Balance of mortgage on steamers.....	285,000 00
" G.T.R. Co. for interest coupons pledged as security for payments under guaranties	1,630,477 02
	\$2,069,042 05
To interest accrued on bonds since Oct. 1, 1899, etc.....	\$ 80,490 40
" Sundry amounts due by the Co.....	358,074 63
" G.T.R. Co. for payments under guaranties	1,630,477 02
	\$2,069,042 05

TOLEDO, SAGINAW AND MUSKOGON RY. CO.

1898.	GROSS RECEIPTS.	1899.
\$ 22,249 35	From passengers.....	\$ 23,329 94
84,471 21	From freight & live stock.....	83,600 68
7,263 65	From mails & express freight..	7,310 31
17,746 10	Miscellaneous receipts..	19,087 36
\$131,730 31		\$133,328 29
107,892 74	Working expenses & taxes....	108,138 40
	81.90% of the gross receipts 81.11	
\$ 23,837 57	{ Net revenue (applied to ex- cess of working expenses & taxes over receipts at Dec 31, 1898).....	\$ 25,189 89
83,100 00	Interest on bonds issued.....	83,100 00
\$ 59,262 43	Deficiency.....	\$ 57,910 11
Bond interest due for 1899, as above.....		
Amount of interest paid for 1899, being amounts received under traffic agreement of May 10, 1888, with the following companies:		
From G.T.R. Co.....	\$40,976 72	(3.236% for the year).
From C. & G.T.R. Co.....	12,806 20	\$53,782 92
Bond interest short-paid for 1899.....	\$29,317 08	
Bond interest short-paid for 1898.....	\$31,275 26	

Passenger train mileage.....	1899.	1898.
Freight & mixed train mileage.....	77,440	76,711
	73,988	73,011
Train miles earning revenue.....	151,428	149,722
Piloting, shunting, & light-running engine miles.....	8,763	9,064
Total traffic engine miles...	160,191	158,786
Passenger car mileage.....	193,747	236,117
Freight car mileage.....	891,341	847,165
	1,085,088	1,083,282

The number of passengers carried was 40,048, against 37,765, & the number of tons of freight 103,703, against 98,918. The increased tonnage was principally lumber, 7,377 tons; hay, 3,028 tons; potatoes, 2,490 tons; anthracite coal, 1,058 tons; bituminous coal, 1,511 tons; & cement, brick & lime, 513 tons; the principal decreases being grain 5,105 tons; & fruit & vegetables, 3,288 tons.

BALANCE SHEET AT DECEMBER 31, 1899.	
Capital Stock (16,000 shares at \$100 each).....	\$1,600,000 00
First mortgage bonds issued, due July 1, 1918, secured by mortgage, dated July 2, 1880, for \$1,734,000.00, interest at 5% per annum, payable Jan. 1 & July 1.....	1,662,000 00
Balance carried down.....	1,798 35
Cost of line & rolling stock.....	\$3,263,798 35
To bond interest unearned & unpaid.....	\$ 370,563 35
To C. & G.T.R. Co. for supplies, for which bonds are pledged, per contra.....	102,000 00
To G.T.R. Co. for advances.....	5,038 65
To G.T.R. Co. for advances under traffic agreement.....	341,127 51
To C. & G.T.R. Co. for advances under traffic agreement.....	146,699 40
	\$ 965,428 91
By balance brought down, being over expenditure on capital account.....	\$ 1,798 35
By balance of net revenue account (deficiency).....	373,593 74
By this Co.'s bonds pledged, per contra.....	102,000 00
By sundry accounts due to this Co.....	209 91
By G.T.R. Co. for bond interest coupons pledged as security for advances under traffic agreement.....	341,127 51
By C. & G.T.R. Co. for ditto.....	146,699 40
	\$ 965,428 91

CINCINNATI, SAGINAW & MACKINAW R.R. CO.

1898.	GROSS RECEIPTS.	1899.
\$ 35,599.82	From passengers.....	\$ 37,773.32
95,274.09	" freight and live stock.....	117,236.37
5,970.84	" mails and express freight..	5,646.14
831.23	Miscellaneous receipts.....	585.01
\$137,675.98		\$161,240.84
111,166.21	Working expenses and taxes....	120,277.93
	80.74% of gross receipts..74.60	
\$ 26,509.77	Net revenue.....	\$ 40,962.91
86,450.00	Interest on bonds issued.....	86,450.00
\$ 59,940.23	Deficiency.....	\$ 45,487.09
Deduct: Payments by the following companies, under terms of agreement of Oct. 2, 1890, between them, the C. S. & M. R. Co., & A. W. Wright & others, being 25% of the following companies' gross receipts from freight & passenger traffic interchanged with the C. S. & M. R. R. for the year.		
1898.		1899.
\$13,533.16	Paid by C. & G.T.R. Co.,.....	\$21,227.56
9,000.20	Paid by G. T.R. Co.....	11,275.42
\$22,533.36		\$32,502.98
Also a payment by C. & G. T. R. Co., under terms of agreement of Oct. 2, 1890, between the G.T.R. Co. and it, being excess of cost of operating the C. S. & M.R.R. over 70% of its gross receipts for the year ..		
37,326.38		7,409.34
14,793.02		39,912.32
\$ 22,613.85	Bond interest unpaid for year..	\$ 5,574.77

Interest paid for the year on bonds issued:	
From net revenue as above.....	\$ 40,962.91
" payments by C. & G. T. & G.T.R. Co.'s as above.....	39,912.32
	\$ 80,875.23
\$ 63,836.15	
= 3.692% for the year.	= 4.677% for the year.

Number of passengers carried....	1899.	1898.
" tons of freight carried.....	71,252	66,878
	240,995	196,914
Passenger train mileage.....	69,717	69,562
Freight ".....	39,504	35,294
Total train miles earning revenue	109,221	104,856
Piloting, shunting, & light running traffic engine miles.....	82,026	64,743
Total traffic engine miles.....	191,247	169,599
Passenger car mileage.....	230,586	228,513
Freight ".....	990,195	795,315
Total car mileage.....	1,220,781	1,023,828

BALANCE SHEET AT DEC. 31, 1899.	
Cost of line & rolling stock at Dec. 31, 1898.....	\$3,229,710.45
Deduct amount received from Western Union Telegraph Co. for telegraph wires, poles, etc., on line.....	2,500.00
	\$3,227,210.45
Balance carried down.....	1,789.55
	\$3,229,000.00
Capital stock, 15,000 shares of \$100 each.....	\$1,500,000.00
First mortgage bonds issued, due Jan. 1, 1920, secured by mortgage dated Jan. 1, 1890, for \$2,000,000 interest 5% per annum, payable Jan. 1 & July 1.....	1,729,000.00
	\$3,229,000.00
To balance of capital unspent, brought down \$	1,789.55
" Bond interest unearned & unpaid.....	122,577.57
" C. & G.T.R. Co. for supplies, for which bonds are pledged, per contra.....	32,000.00
" C. & G.T.R. Co. for advances under traffic agreement.....	157,827.99
" G.T.R. Co. for ditto.....	82,137.28
	\$ 396,332.39
By balance of net revenue account (deficiency per contra).....	\$ 122,577.57
" this Co.'s bonds pledged, per contra.....	32,000.00
" G.T.R. Co.....	1,789.55
" C. & G.T.R. Co., for bond interest coupons pledged as security for advances under traffic agreement.....	157,827.99
" G.T.R. Co. for ditto.....	82,137.28
	\$ 396,332.39

Alberta Railway & Coal Company.

The accounts for the year ended June 30 last, show that the coal sales made by the Co. during the year were 160,645 tons, against 184,764 during the previous year, a decrease of 24,119 tons, attributable entirely to smaller sales in Montana. On the other hand, the earnings of the railway, apart from the carriage of the Co.'s coal, increased \$42,393, the gross returns being \$119,139, against \$76,746 for the preceding year. After payment of interest on prior lien debenture stock there remained a balance of profit of £4,628, which, added to the balance of £42 from last year's accounts, amounted in all to £4,670. The auditors having certified this amount as payable to the A debenture stockholders, a distribution of £1 17s.%, requiring £4,625, has been made amongst them. Since June 30 last the Co.'s business has expanded, particularly in the case of its railway traffic. The Co. is now regularly transporting large quantities of Crow's Nest coke over its entire system for use in the smelters in Montana.

The accounts of the allied company, the Canadian Northwest Irrigation Co., for the year ended June 30th, show that the land sales during the year were 27,484 acres, & since June 30 last further sales have been made of 1,545 acres, or a total of 29,029 acres, for which good prices have been obtained. All this land is outside the irrigation area, so that none of the irrigated & more valuable land has yet been sold. The construction of the

Company's irrigation canal system was completed, & water running through its entire length on Sept. 4 last. The total length of the system is 115 miles.

Special Meeting of the G.T.R. Company.

A special general meeting of proprietors was held at the Cannon Street Hotel, London, Eng., Dec. 12. The notice calling the meeting said:—"The proprietors have been informed in recent half-yearly reports, that the Chicago & G. T. Co. was in process of reorganization, & the directors have to report that the sale of the C. & G. T. line & property, under decree of foreclosure, took place on Oct. 31st last, & was acquired by the purchasing committee appointed for that purpose. A new Co. has since been incorporated under the title of the Grand Trunk Western Ry. Co., with a capital of \$6,000,000 of common stock, \$15,000,000 of 1st mortgage 4% 50-year gold bonds, & \$1,500,000 of 4% income bonds secured by a 2nd mortgage on the property. The G. T. Co. will receive the entire \$6,000,000 of capital stock of the G. T. W. Ry. Co., in consideration of which the agreement, copy of which is appended hereto, will be entered into. Under this agreement the Co. will guarantee the interest on the \$15,000,000 1st mortgage bonds. Although the terms of the agreement are within the powers already granted by the proprietors at the ordinary general meeting, held on Oct. 9th last, the directors deem it desirable that the arrangement as now finally concluded should be formally confirmed. A resolution to that effect will be accordingly submitted at the special general meeting, which the directors recommend for acceptance by the proprietors."

The President, Sir C. Rivers Wilson, said they would remember that the C. & G. T. line

was created some 20 years ago, & that by an agreement in 1880, the G.T.R. undertook to make up the interest of 6% on the 1st mortgage bonds amounting to \$6,000,000, & in 1882 a further mortgage was made, & a further agreement was entered into by the G.T. for guaranteeing—still out of the gross traffic interchanged—a further mortgage of \$6,000,000. The line had proved during the course of those years to be unequal to meet its obligations, & the consequence had been that a very heavy charge had been thrown year by year upon the G. T. guaranteeing company. By singular want of foresight no provision was made in the agreement of 1882, by which any money could be obtained for capital purposes—that is to say, for the betterment or the improvement of the line. The consequence had been that all the burden of improvement had devolved upon the G. T. Co. The amount that it had advanced for capital purposes at present came to no less than £1,359,000. When the 1st mortgage bonds fell due on Jan. 1, 1900, no means were provided for the payment off of that mortgage, & the G.T., as largely interested in the C. & G. T. Co., took the initiative in considering what steps should be taken to deal with the property. It was quite clear that it was not an obligation, either legal or moral, for it to meet this liability, which fell due on Jan. 1 last. Still less could they contemplate the possibility of a continuance of this heavy drain, year by year, upon the resources of the G. T. Co. The view they took was that there must be a complete reorganization of the capital of the Co., having for its object that the Co. in the future should stand upon its own legs, & should not be entirely dependent, as it had been heretofore, upon the G. T. Co. Shortly after the bonds became due & were defaulted upon steps were taken for the foreclosure of the mortgage, & trustees were ap-

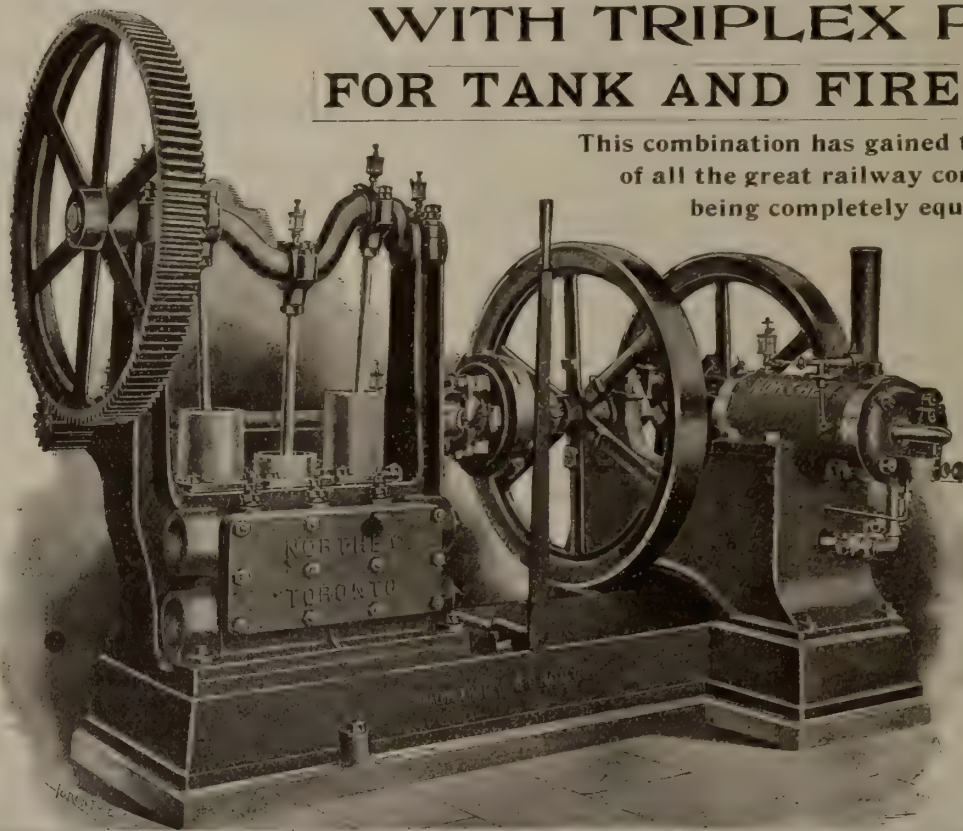
pointed, in the interests of the bondholders, to make the necessary arrangements. As representing the large majority of the bondholders, they had met in council the representatives of the 1st mortgage bondholders, who were more particularly interested, inasmuch as their mortgage would, under ordinary circumstances, have run on for a period of another 22 years. They came to an agreement with them, & the result of the agreement was that a new company had been formed, which was constituted upon the basis of a mortgage debt of \$15,000,000 of 1st mortgage, carrying interest at 4%. They undertook, as the result of their negotiations with these bondholders, that the G.T. should undertake to guarantee that it would set aside 30% of its gross earnings from the interchange of traffic to meet the interest upon those bonds amounting to \$600,000 a year, & furthermore, they agreed to give an unconditional guarantee, although the board considered that a traffic guarantee virtually answered all purposes. Since then the line had been sold, the old company had disappeared, & a new company, which would be called the Grand Trunk Western Co., had come into existence. Then, for the purposes of administration, it was thought advantageous that the G. T. Junction Co. should lease itself in perpetuity to the G. T. Co. Much credit was due to Mr. Hays & his legal adviser for the efficient manner in which the whole of the arrangements had been carried out. He concluded by moving that the agreement be approved.

Vice-President Jos. Price seconded the motion, which was agreed to unanimously. The proceedings terminated with a vote of thanks to the President & directors.

Sir Rivers Wilson paid a glowing tribute to C. M. Hays, saying it was impossible to find a second Hays, but he believed G. B. Reeve was the best man whose services could possi-

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The Triplex Pump used, with pistons placed 120 degrees apart, gives a practically constant flow of water, minimising strain on pump, connections, piping, etc. Both machines are heavily and solidly built, and carry the most ample guarantees.

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bly be secured. He dilated on the sacrifice Mr. Reeve had made in giving up his retirement to take on the onerous duties of General Manager.

The shareholders congratulated the directors on the action taken, & gratefully bade farewell to Mr. Hays.

It was announced that Mr. Hays' staff would remain with Mr. Reeve.

C.P.R. Earnings, Expenses, &c.

Gross earnings, working expenses, net profits and increases or decreases over 1899, from Jan. 1, 1900:

Earnings.	Expenses.	Net Profits.	Increase or Decrease.
Jan. \$2,152,071.32	\$1,460,501.71	\$691,569.61	\$74,035.75+
Feb. 1,954,087.59	1,331,355.34	622,732.25	23,030.77+
Mar. 2,294,786.97	1,495,685.73	799,101.24	29,794.33+
Apr. 2,491,194.47	1,464,126.85	1,027,067.62	106,764.13+
May. 2,662,897.81	1,583,227.32	1,079,670.49	46,911.88+
June. 2,612,759.73	1,554,954.11	1,057,805.62	34,745.42+
July. 2,471,109.64	1,586,759.74	884,373.90	88,587.73+
Aug. 2,637,983.61	1,583,508.01	1,054,475.60	35,643.88+
Sept. 2,663,491.82	1,604,791.81	1,058,700.01	88,185.54+
Oct. 2,774,826.60	1,606,652.19	1,078,174.41	332,841.53+
Nov. 2,748,660.22	1,683,111.90	1,065,548.32	216,687.56+

\$27,463,929.78 \$17,044,710.71 \$10,419,219.07 \$434,064.86+
+ Increase. - Decrease.

Approximate earnings for Nov., \$2,667,000, against \$2,941,000 in Nov., 1899, decrease \$274,000.

SUBSIDIARY LINES.

DULUTH, SOUTH SHORE & ATLANTIC.—Approximate earnings for Nov., \$176,123; decrease from Nov., 1899, \$41,766.

HANCOCK & CALUMET.—Approximate earnings for Nov., \$22,726, decrease from Nov., 1899, \$790.

MINERAL RANGE.—Approximate earnings for Nov., \$24,209; decrease from Nov. 1899, \$5,765.

MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE.—Approximate earnings for Nov., \$404,086; decrease from Nov., 1899, \$113,016.

Canadian Pacific Railway Land Sales.

	Acres.	Amount.		
	1900	1899	1900	1899
Jan.	31,486	14,718	\$100,857.85	\$46,411.35
Feb.	23,613	13,747	75,771.19	43,371.69
Mar.	31,183	24,045	97,777.79	75,460.76
April.	58,437	36,626	181,775.78	116,835.84
May.	66,037	26,584	214,851.09	88,928.98
June.	57,831	54,225	188,779.64	169,192.74
July.	40,715	47,401	129,481.42	149,546.48
Aug.	32,178	35,214	103,480.78	110,705.50
Sept.	18,807	25,517	69,012.54	83,719.70
Oct.	18,858	30,473	62,769.54	99,429.09
Nov.	22,408	42,633	69,627.27	140,491.39
	404,593	351,183	\$1,294,184.89	\$1,124,093.52

Grand Trunk Earnings, Expenses, &c.

The following statement of earnings, supplied by the Montreal office, includes the G.T. of Canada, & the Detroit, Grand Haven & Milwaukee Rys., the earnings of the Chicago & G.T., which is in the hands of receivers, being omitted:

	1900.	1899.	Increase.	Decrease.
July.	\$1,844,458	\$1,799,945	\$44,513	....
Aug.	2,088,602	2,064,269	24,333	....
Sept.	2,117,690	2,178,303	....	60,613
Oct.	2,176,028	2,158,337	17,691	....
Nov.	2,029,891	2,109,214	....	79,323

\$10,256,669 \$10,301,068 \$86,537 \$130,936

Decrease for 5 months, \$44,399.

The following figures are issued from the London, England, office:

GRAND TRUNK RAILWAY.

Revenue statement for Oct., 1900:

	1900.	1899.	Increase.	Decrease.
Gross receipts.	\$427,000	\$434,400	\$2,600	....
Working expenses.	268,500	262,500	6,000	....

Net profit. \$158,500 \$161,900 \$3,400

Aggregate from July 1 to Oct. 31, 1900:

	1900.	1899.	Increase.	Decrease.
Gross receipts.	\$1,612,200	\$1,604,647	\$7,553	....
Working expenses.	1,029,800	1,012,515	17,285	....
Net profits.	\$582,400	\$592,132	....	\$9,732

DETROIT, GRAND HAVEN & MILWAUKEE RY.

Revenue statement for Oct., 1900:

	1900.	1899.	Increase.	Decrease.
Gross receipts.	\$20,000	\$19,000	\$1,000	....
Working expenses.	15,000	11,300	3,700	....
Net profit.	\$5,000	\$7,700	....	\$2,700

Aggregate from July 1 to Oct. 31, 1900:

	1900.	1899.	Increase.	Decrease.
Gross receipts.	\$77,900	\$80,304	....	\$2,404
Working expenses.	59,100	50,311	8,789	....
Net profit.	\$18,800	\$29,993	....	\$11,193

TRAFFIC RECEIPTS OF THE SYSTEM.

Traffic receipts, July 1 to Nov. 30, 1900:

	1900.	1899.	Increase.	Decrease.
Grand Trunk.	\$2,009,540	\$2,017,514	....	\$7,974
D. G. H. & M.	98,013	99,144	....	1,131
Total.	\$2,107,553	\$2,116,658	....	\$9,105

St. Lawrence Winter Navigation.

J. Kennedy, Chief Engineer of the Montreal Harbor Commission, has made the following report:—"In answer to the question of the Board as to the advisability of an effort being made to keep the St. Lawrence open all winter at Cap Rouge, & as far above as may be found practicable, by the use of the Government ice-breaking steamer Stanley, I beg to say that I consider it of great importance that such an effort be made. It is, I think, established that the taking of the ice on the main channel of the St. Lawrence between Montreal & the sea, does not occur by the formation of a smooth sheet over its surface, nor by the widening of the border from the sides until the whole is covered as in small rivers, but by the formation of floating fields, which are kept in motion by tide or current, & which grow as they move, until one or more become of sufficient size & strength to block the narrow places of the river, as at Sorel Island, at Cap Rouge, & the Island of Orleans. A blockade thus formed, if allowed to stand, arrests all floating ice which strikes it, the smaller floes are forced under by the tide or current, & there lodge until an ice jam of great thickness & strength is formed, & meanwhile the larger floes accumulate on the surface until the river above is covered. The experience in keeping open the winter ferry at Quebec has shown that by the skilful use of steamers of moderate power at the proper time & place, the formation of such blockades can be prevented, or if suddenly formed they can be broken up before attaining great strength; & that the floating fields having then nothing to hold them are kept moving by tide & current, & are carried off to sea before attaining sufficient size & thickness to seriously obstruct navigation.

"The conditions which prevail at Cap Rouge are so nearly the same as those at Quebec that there can be no doubt but that the Cap Rouge ice jam can also be prevented from forming, & with equal ease. In the winter of 1885-6 no blockade formed at Cap Rouge, & the main channel of the river also remained open from Three Rivers to the Gulf, which goes to show that if Cap Rouge be kept free it should not be difficult to keep much more of the river open. It is well known that the Cap Rouge ice jam is the last point of obstruction to the clearing away of the ice above Quebec in spring, & that navigation up to Montreal is sometimes seriously delayed by its holding on to a late date. The average date of the opening of navigation at Montreal by the river steamers which winter above Cap Rouge is, for the last 25 years, April 19, but the average date of the first ar-

rivals from sea is retarded until April 30. Allowing a day for ships to come from Quebec to Montreal leaves 10 days average delay in the opening of navigation from sea, which may be fairly considered as caused by the holding on of the Cap Rouge ice jam.

"An ice-breaking boat of the power of the Stanley could by occasional work at proper times easily eliminate this delay; by additional work she could keep open all winter the channel up to the lower end of Lake St. Peter; & the same or a more powerful boat, by more constant work, & the skill which would be gained, by experience would not only keep open the navigation channel through to Montreal but, as was pointed out by the Montreal Flood Commission of 1887, it would, by breaking up the ice at proper places and times, prevent the formation of heavy ice jams, & thereby prevent the disastrous winter floods of which they are the primary cause."

A meeting in reference to winter navigation of the St. Lawrence, held in Quebec recently, was addressed by J. X. Perreault, Canadian Commissioner to the Paris Exhibition, representing Armstrong, Mitchell & Co., the well-known ship-builders; Col. McNaught, one of the directors of the Great Northern Ry. of Canada, Capt. Inman of Duluth, & O. W. Norden, of Finland & Paris. Mr. Perreault had greatly interested himself in the models of ice-breaking vessels built by Armstrong & Co., which were shown at the Exposition, & brought one of the models to Canada with him. Capt. Inman, who has taken a great deal of interest in the subject of winter navigation, said that it struck him as singular that navigation on the St. Lawrence should cease during the winter. He had been conversing with pilots & found that the river was seldom frozen over entirely. He pointed out that winter navigation where ice has to be contended with has been practised in America for 30 years. With a small boat of 250 h.p. he had kept the harbor of Duluth open all winter, although they had ice of from 18 to 36 in. in thickness to deal with. He saw nothing to prevent vessels keeping up regular trips from Duluth to Georgian Bay ports all winter. With the river open from Quebec to the sea, western grain could be exported with the minimum of land carriage.

Mr. Norden has been intimate with the winter navigation of the Baltic for the past 16 years. The work was begun there in a tentative way, but under the encouragement of the various Governments interested it is developing into enormous proportions, which is proof sufficient that from a commercial point of view the enterprise has been profitable. The winter there, he says, is quite as severe as along the St. Lawrence. He considered that winter navigation was practicable here, even more so than on the Baltic, where they did not have the advantages of the tides. As it had been shown that the risk was not considerably larger than by ordinary navigation, he did not believe that insurance rates would be too high to leave any profit in the business.

Col. McNaught said that when the G.N.R. was nearing completion the Co. became interested in the subject of winter navigation. He got in communication with Capt. Inman & other experts. He also had a number of interviews with the Detroit dry-dock people, who have perhaps more experience in winter navigation & in building boats for winter navigation on the great lakes & in other parts of the world than any other company in existence. These gentlemen have no doubt of the practicability of the scheme. Col. McNaught has subjected the matter to the cold analysis of a business calculation. It costs 25% more to build steamers suitable for the work, & 25% more to operate them. But even with these increased expenses water carriage could still underbid carriage by railway. A saving of \$5,000,000 a season could be effected

on the products shipped from Duluth alone. So confident are the Detroit men of the feasibility of the scheme that they have become members of a company formed by Col. McNaught for the purpose of going into the business. If the Federal Government is disposed to assist in establishing the service, the following offer will be made by the company: It will furnish one-half money necessary to build three steamers & three ice-tugs & operate them, if the Government will complete the necessary lighthouses & contribute as a subsidy enough money to cover the additional expense of a winter boat, & enough money in annual subsidies for a few years to pay the additional cost of insurance for winter navigation.

Electricity for motive power on C.P.R.
—A Rossland paper states that General Superintendent Marpole, of the Pacific Division, & W. Cross, Assistant to the Manager Mechanical Dept. Western lines, recently visited there to confer with the West Kootenay Power & Light Co.'s officials, in reference to securing electric power for operating the railway between West Robson & Rossland.

Concrete Stone Arch Culvert on the L. E. & D. R. R.

Owen McKay, Chief Engineer of the Lake Erie & Detroit River Ry., has furnished plans of a concrete arch culvert of 20 ft. span recently constructed over Little Cedar creek, about 29 miles east of Walkerville. The abutment & wing walls of the culvert stand upon a foundation of 4 rows of live oak piles, spaced $2\frac{1}{2} \times 3$ ft., driven to a depth of about 16 ft. & cut off at an elevation 6 ins. above the lower limit of the concrete work. The abutment walls are 10 ft. high, to the springing line, & $5\frac{1}{2}$ ft. thick at that point, sloping off to a point 2 ft. above the foundation on the back side. The arch has a radius of 10 ft. $7\frac{3}{4}$ ins. at the intrados & a radius of 20 ft. at the extrados, & is 2 ft. thick at the crown; the rise of the arch is 7 ft. The spandrel walls are $2\frac{1}{2}$ ft. thick & extend $1\frac{1}{2}$ ft. above the crown of the arch. The arch is 51 ft. long, face to face, & covering a width of 12 ft. each side of its middle there are 10 curved track rails embedded in the concrete of the arch, as shown at A, fig. 1.

The wing walls are 22 ft. long & open out at an angle of 12° . Up to the springing line

of the arch the face of each wing wall stands vertical, thus permitting it to meet the face of the abutment wall at a vertical corner, & avoiding a re-entrant angle, to obstruct the flow. Above the springing line the wing walls are slightly battered & finished without coping at a slope of 1.7 to 1 from the ground line, which is 6 ft. above foundation. The paving of the culvert is a flat inverted arch of concrete, 12 ins. thick on the center line & 20 ins. thick at the abutment walls. The thickness shown on the plans on page 361 is 8 ins. at the center line, but as the work progressed a soft bottom was found, & the plans were not followed in respect to this detail. The paving extends the entire length of the opening between the wing walls, or 95 ft. from end to end, & is curved at either end with a concrete wall 2 ft. thick & $2\frac{1}{2}$ ft. deep. The distance from the crown of the arch to the base of rail is 11 ft. & the clear height of the opening under the arch, on center line, is $14\frac{1}{2}$ ft. Other dimensions appear in the engravings.

All the masonry of the arch & in the supporting & protecting walls is of concrete. The material of which the arch is composed consists of 1 part of Portland cement to 2 parts of clean, sharp sand & 3 parts of crushed

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stone. The concrete in the remainder of the work is composed of 1 part Portland cement to 3 parts of sand & 5 parts of crushed stone. The concrete was hand mixed. The intrados of the arch, the face of the abutments & wing walls, & all exposed faces of the culvert were made with a layer of cement mortar $1\frac{1}{2}$ ins. thick, composed of 1 part of cement to 2 parts of sand. The back or upper surface of the arch & back of the abutment walls were covered with a 1-in. layer of strong cement mortar composed of 1 part Portland cement & 1 part sand. The face mortar was deposited at the same time as the backing, & the whole rammed while fresh so as to ensure a good bond. To protect the back of the arch & abutment walls those surfaces were covered with a layer of asphaltum applied hot. The forms for the concrete were made of 2-in. pine plank dressed on the inner side & both edges. The stone used in the concrete was broken to pass through a 2-in. ring & screened to rejection by a $\frac{1}{4}$ -in. ring.

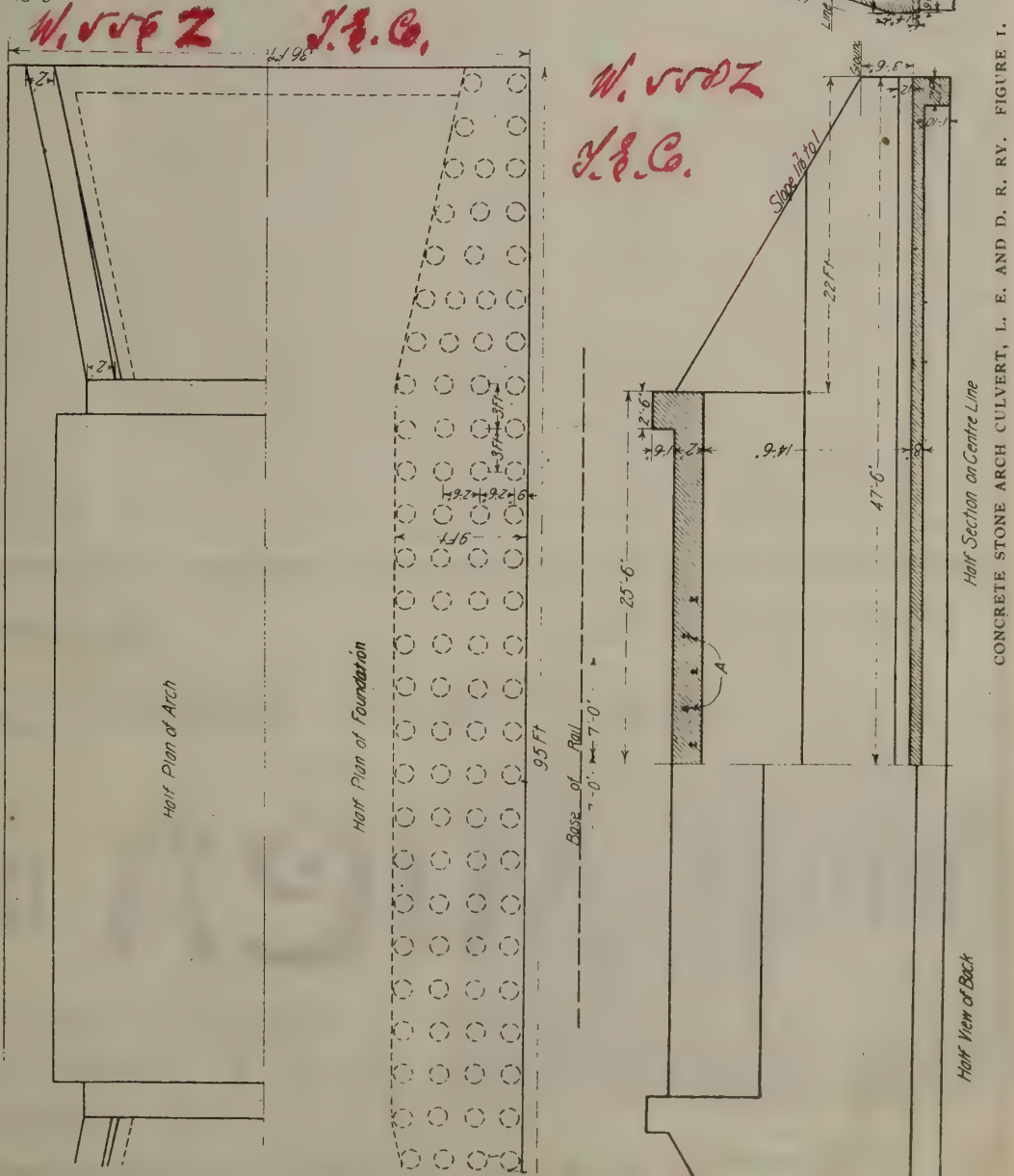
The culvert was constructed under a trestle crossing a ravine, which has subsequently been filled up, requiring about 1,400 carloads of gravel for the embankment. The number of cubic yards of masonry in the structure is 785. The work was done by contract, beginning April 5, & completed Aug. 4. The total cost of the culvert was \$6,700, & for diverting the stream & making the embankment, \$1,385.

local companies, but it will not necessarily be in the form which we submit to you to-day. The auditor of the local companies is the correspondent of the auditors of this company (Woodthorpe, Bevan & Co.), who are people well known in the city of London, & in a great measure it was for this reason that Geo. Wilkinson (the auditor of the local companies) was appointed their auditor by the boards of these companies. You will, naturally, wish to know how matters have been progressing with the railway enterprise during the present season. I can begin by assuring you that, in our opinion, the progress that has been made & the prospects of the undertaking are very satisfactory. You will remember that I told you, when I had the pleasure of addressing you about a year ago, that it had been determined to extend the line from Bennett's City to the foot of the White Horse Rapids, so as to avoid waste of time & money involved in unloading freight from the Upper Yukon steamers on to the tramways & reloading it on the Lower Yukon steamers, & so as to deliver goods at a point whence there is unimpeded navigation for steamboats to Dawson City & the mouth of the Yukon. This

extension—a most important link in our system—as you will have seen from the reports, has now been completed, & since early last Aug. through trains have been running from Skagway to White Horse—a line of $112\frac{1}{4}$ miles. At White Horse the trains connect

White Pass & Yukon Railway.

The third ordinary general meeting was held in London, Eng., Nov. 19. The Hon. S. Carr Glynn, Chairman of the Co., who presided, said: The report & statement of accounts, together with the documents attached to them, have been in your hands now for some time, & I have no doubt they have been perused by you with great interest. They are certainly far more voluminous than is usual on these occasions; but we thought in the present condition of the undertaking you ought to have the fullest information, & it could not be supplied better than by the excellent reports of Mr. Hawkins, our Engineer-in-Chief, & which have been made on the spot. This gentleman has had charge & control of all of the operations that have been carried out, & by these reports you will see how thoroughly well the work has been done in the face of great difficulties, encountered from the severe climate & the disadvantage of carrying out the work at so great a distance from the base. But, in addition to this, I am glad to say that we have with us to-day Mr. Graves, the President of the Yukon route, who has just returned from spending some time on our railway & in its immediate neighborhood, & who will be able to give you complete information at first hand with regard to the prospects & position of your railway, with which he has been so closely connected since the inception of the enterprise. This year we have issued with our report a copy of the report of the auditors of the local companies, because we thought that the shareholders would naturally wish to know that a careful examination of the local companies' accounts had been made, & I think this report gives particulars of the three local companies' accounts combined in much greater detail than is usually the case. We shall publish with our annual report a certificate from the auditor of the



with the steamers of the Canadian Development Co., with which Co. an advantageous through-traffic agreement has been made.

I do not wish to go into great detail, but there are one or two points to which I must allude. I should wish to express our sincere thanks to the Pacific Contract Co. for the excellent manner, as well as the expedition, with which their work has been carried out, as certified by our Chief Engineer, to whom was entrusted by the contractors the arrangement of all details of construction, & the work was carried out under his supervision & to his specification. I should also be neglecting my duty if I did not place on record the high appreciation we feel—and I am sure you will endorse this—for the services of all our staff, & to express our sincere gratitude for the zeal & devotion they have shown, often under circumstances of very great difficulty. I should wish, also, to congratulate the shareholders upon—may I say the undoubted success of the enterprise in which we are interested. The indications that are before us seem clearly to demonstrate that it must result in a great success, both financially & commercially. And it must be a satisfaction to feel that we have opened out a route through what was a wild & inhospitable country, after surmounting almost unparalleled difficulties, to a nearly unknown region, doubtless not favorable to regular settlement, but teeming with mineral wealth of all descriptions, which, when gained, must conduce, if not to the happiness, at any rate to the prosperity of the community. It is equally satisfactory to feel how much this route has mitigated the sufferings & privations that previously had to be undergone by those who sought to traverse these desolate passes & dreary regions, & I am sure you will agree with this—for all Englishmen are fond of horses—that it is also a pleasure to feel that it has spared the lives & reduced the terrible sufferings of many of those noble animals which are man's allies in so many arduous undertakings. Therefore, from many points of view we may regard our enterprise with pride & satisfaction as a monument of scientific progress & engineering skill. I should now like to call your attention to the balance-sheet which is laid before you. You will notice that the accounts of the local companies are brought down to the close of 1899, & our own Co.'s accounts are made to a date six months later. This produces a discrepancy which, possibly, some of you may have remarked, but which is easily explained. In the body of our report the profits are put down as £117,-

411, whereas in the profit & loss account they appear as £125,523. The difference between these figures is due to the fact that a further six months' interest in local companies' bonds is brought into our accounts. I think in all probability when we present another account we shall put these as a separate item, because it is a little confusing. Now, with regard to the debentures you will remark that there are three issues of debentures made by the company, all carrying interest at the rate of 6%. We have successfully arranged to convert these three issues into one consolidated issue of 5% debenture stock, affording us a considerable saving in interest. Holders of £435,000 out of £469,000 of securities actually issued have so far signified their intention of exchanging from the 6% to the 5%. A public issue of this consolidated stock will be made in a few days, & considering the very large margin of profit in excess of the amount required to pay the interest on the debenture stock, we anticipate it will be well taken up. The bills payable & sundry creditors are bills, etc., on account of the net earnings, & are being repaid out of such earnings as they are received. The balance of profit & loss account is £83,315, sufficient to have paid a satisfactory dividend, but this, in accordance with the sanction of the meeting last year, has been expended in the further construction of the railway.

Turning to the credit side, the shares & debentures & mortgages of the local companies are all held & controlled by the Railway Share Trust & Agency Co., who are the trustees for the debenture-stock holders. The local companies are actually controlled by this Co., & if the management is unsatisfactory to our shareholders we can order a complete change. With regard to the next item, about £28,000 was paid to the contractors on account of the construction of the second portion. The rest has been spent in acquiring further rights & concessions as stated in the balance-sheet entry. The contract price for the construction of the second portion was £6,000 a mile, payable as to £300,000 in debenture stock, & as to the balance in cash out of the net earnings. Of the £300,000 of debenture stock £119,830 had been issued at the date of the balance sheet, & the remainder was issued against engineers' certificates received subsequently to that date. The only other point I think I need remind you of is that the charges in the profit & loss account are for two years less one month, & there will naturally be a considerable reduction in these

items in our next accounts. During last year we published in the English papers particulars of the weekly traffic earnings as they were cabled to us from the other side; but after very careful consideration it was decided that it was not desirable, in the interests of the shareholders or of the public, to continue the practice this year, because any such publication must of necessity be misleading. For one thing, the contractors had an interest under their contract in the net earnings of the second portion of the line until it was completed & accepted from them on behalf of the local companies, & consequently, the weekly earnings that could be published would not give a fair indication of the benefit that their company would derive from such earnings. And another thing, our railway is peculiarly circumstanced. The earnings during the months of open navigation on the Yukon are very large compared with those for the period during which navigation is closed, & to publish the traffic during the busy months would, to the uninitiated, give a totally false impression of the earning capacity of the enterprise for the whole year, & any one buying shares in ignorance of the fact that the traffic returns drop off almost entirely during the winter months might well have cause to complain of not being warned. It is proposed also during the winter months to overhaul & revise the traffic rates in time for the heavy work that we anticipate in the summer. When the railway has run for some little time, & it becomes a well-known fact that the traffic returns for the very few busy months in the summer are not to be taken as an average for the whole year, we may revert by publishing the traffic returns. I am glad to say that the earnings have been very satisfactory, & I will go further, & say that I believe that when the accounts of the local companies come to be made up at the end of the year, it will be found that the net earnings of this year, after deducting all charges for operating & maintenance, have exceeded £200,000. It must not be supposed, however, that this amount is now available for dividends; for the net profit of last year & practically all the surplus cash collected this year have been applied in acquiring further concessions & properties tending to the consolidation of the enterprise & in payment for the construction of the second portion of the line.

A considerable amount out of the earnings of this year may not be collected until next spring; for the earnings on through freight are not collected until the consignees at Daw-

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SIDE VIEW OF CULVERT AND WINGWALLS, L. E. AND D. R. RY.

FIGURE 2.

son & elsewhere take delivery of the goods. Thus, at the present moment, there is not the cash in hand to pay an interim dividend, but it is hoped, when all the earnings have been converted into cash, that it may be found possible to pay a dividend of, perhaps, 5% this winter or early next spring. From now on, however, unless anything very unforeseen occurs, the net income should be available for dividends & reserves, for unless conditions in the Yukon change very rapidly there is no present intention of extending the railway beyond White Horse. Some of the shareholders may consider the policy of applying the profits of the Co. to capital expenditure as open to criticism, but my colleagues & myself, & many of the principal shareholders who had been consulted, considered that the best interests of the Co. demanded the immediate extension of the railway & the consolidation of the enterprise, even though it absorb profits available for distribution, & had we attempted to finance the extension of the second portion of the railway by issuing more shares or debentures, it would have proved a very heavy burden for this Co. to support in the future. I feel that in these remarks I have dealt more with generalities than details; but I know Mr. Graves will supply any omission on my part, & you will also find, as I stated before, details on almost every point in these reports. I shall conclude by quoting the final remarks made by Mr. Hawkins, which seem to me most appropriate: "The prospects for future business are even better than at the time of making my report upon the conditions of the first section. With every confidence in the future success of this quite remarkable railway enterprise, I remain, &c." I think we may, with every confidence, re-echo these words and share these sentiments. I beg to move:—"That the report & accounts submitted to the meeting be received & adopted."

Sir Allen Sarle seconded the motion.

S. H. Graves said: The Engineer's report, which is already in your hands, describes the construction of the first & second sections of the railway, & the difficulties attending it, & the nature of the line as constructed, & the report of the auditor of the local companies, also in your hands, shows the result of the operations of the line from the date it was opened, in July, 1899, down to the end of last year—a period slightly under six months. During the winter season, while navigation on the Yukon is closed, the traffic is very light; while, on the other hand, the operating expenses are very heavy, in consequence of the expense involved in keeping the line free from snow & ice. Last winter we were particularly unfortunate in this respect, in consequence of the repeated breakdown of our rotary snow plough, caused partly by the very heavy

nature of the service, & partly by hidden flaws in the steel & iron work. This plough has now been practically rebuilt in our own shops at Skagway, & is very much stronger in every way than when it was delivered to us by the builders, & a second plough, specially designed for our service, has been built for us, & I presume, by this time has reached Skagway, as it was on its way when I last heard of it. I anticipate that the traffic this winter will be heavier than last winter, now that our line is open as far as White Horse. During last winter the construction of the second section of our railway from Bennett to White Horse was pushed so energetically that it was possible to open the line between Caribou & White Horse, a distance of some 45 miles, on June 8 last. This left

a gap of some 27 miles of very heavy rock-work along the shore of Lake Bennett still to be completed. This gap was closed & the through line opened for traffic on July 30. During the interval before the gap was closed, goods & passengers were forwarded by ferry boat down Lake Bennett. The traffic this season, both freight & passenger, shows, as was anticipated, a marked increase over last year, & I have no doubt that when the figures of the local companies to the end of the year come to be made up they will make a showing which will be entirely satisfactory to the shareholders.

Arrangements were made this year before the opening of navigation, under which we have secured the practical control of the river & lake navigation. The boats, steam tramway, wharves, & other property formerly belonging to the John Irving Navigation Co., by means of which the traffic for Taku Arm & the Atlin district was carried forward from our railway, have passed into our hands, so that this traffic has this season been carried on entirely by our own boats. In view of the quartz development in these districts, I consider it of very great importance for the railway to have secured this line of boats. The Dawson traffic has been carried on this season mainly by means of the boats of the Canadian Development Co., with which Co. we entered into an advantageous through-traffic agreement, under which we participate in the profits of the river boats, & practically control the traffic just as much as if we owned the boats ourselves. This is of great importance, & enables us to deal directly with shippers & consignees. In short, instead of being, as formerly, merely a link in a chain, we have now become the chain itself. You will be glad to learn that in consequence of the improved service which we were enabled to give by controlling the river & lake boats, we are now securing the larger part of the gold shipments which hitherto have been made by St. Michaels. We have also been able to build up a surprisingly large traffic in perishable freight, such as fruit, vegetables, fresh meats, &c., & I expect that this class of traffic will greatly increase in succeeding years. You will, perhaps, be surprised when I tell you that goods shipped from such places as Victoria, Vancouver or Seattle have been throughout the past summer delivered by us in Dawson

along with the mail advising the shipment of the goods. In other words, we have carried the freight as fast as the mail, & both have reached Dawson in about a week from the starting point. The sea voyage of 1,000 miles consumes about four days, & Customs house formalities about another day; so that only two days are left for the carriage of the goods more than 100 miles by railway & 500 miles by river. I spent a large part of last summer on the Pacific Coast & in Alaska & the Yukon territory, & I think you will perhaps like to hear from me some of the results of my personal observations. Dealing first with the railway itself, you have such a full report from the Engineer that I will not enlarge upon it beyond saying that the entire line from Skagway to White Horse is a very fine piece of work. The gradients & alignment show skilful engineering, & will enable the maximum of traffic to be handled with the minimum of expense & delay. The wharves, yards, & terminal facilities at Skagway, Bennett, Caribou Crossing & White Horse are of the latest & most approved design, & admirably adapted for our work. The road-bed, though new, is better than that of many older roads. Our shops at Skagway are equipped with iron & brass foundries, a steam hammer, pneumatic-air tools; & in short, all the requisites of an up-to-date locomotive & car-building plant, & we now build our own locomotives out of materials purchased from engine-building companies, & our cars out of raw material. The rolling stock is all first-class of its kind.

The large coal storage bunkers at Skagway, with a capacity of 3,500 tons, which were built this summer to enable us to carry a winter supply of coal, are now filled, & we are ready for the winter so far as fuel is concerned, instead of having to depend, as last winter, upon getting cargoes during the rough winter months. The steel cantilever bridge across Switchback Canyon was in process of erection when I was there, & I trust that by this time it is about ready for use, thus saving the delay & expense already involved by the operation of the switchback. Our operating department estimates that this bridge will pay for itself in two years. We are putting in steam travelling gear for loading & unloading vessels by machinery at our wharf at Skagway, & in this way we shall for the future effect a great saving in time, labor & expense. You will gather from the foregoing that by the time business is resumed next spring, with the opening of navigation, we shall be in a position to handle a very large traffic to the best possible advantage. The next thing that you will want to know is as to the prospects for such a traffic. Hitherto by far the greater proportion of the business go-



END VIEW OF CULVERT AND WINGWALLS, L. E. AND D. R. RY.

FIGURE 3.

ing over our line has been for Dawson. The development of other placer mining districts on the Yukon River has been retarded by the Cape Nome rush; but most of the people have now returned from that district, & many of them are going to work during the winter at points along the Yukon River on both sides of the International Boundary. A large business may reasonably be expected for these districts in the future, & already the U.S. Government & the large trading companies are sending in supplies in considerable quantities over our line. As regards the Dawson traffic, the prospects for next season indicate a considerable increase, on account of the Canadian Government having recently adopted the policy of throwing open all claims in the Klondike for mining instead of keeping more than half of them idle as reserved Crown claims. There are also prospects held out that the 10% royalty will be materially reduced, which will enable a number of claims to be worked that are now lying idle, & the Dominion Government have also undertaken the work of making good waggon roads connecting Dawson with various creeks where the gold is produced. Heretofore, except during winter time, traffic has practically been limited to pack horses. But although this Klondike traffic will undoubtedly for many years to come form a large & important branch of our business, it is a great & too common mistake to suppose that the mining industry of the Yukon Valley is limited to Dawson & the Klondike. The development of the enormous valley that is drained by the Yukon River & its tributaries, which form continuous waterways many thousand miles in length, has only just begun; but gold & other minerals are found from the upper sources of the Yukon down, not only to the mouth of the river, but even as far beyond it as Cape Nome. Gold is now being

produced in very considerable quantities at places as widely separated as Atlin, the Big Salmon River, the Stewart River, White River, Forty-Mile River, Tanana River, Koyukuk River & Cape Nome.

The gold is found not only in the gravel beds of the innumerable rivers & streams, but also in quartz veins which are being opened up in many places, especially on the Upper Yukon. In this respect most progress has probably been made in the Atlin & the Taku Arm districts. While I was there this summer I personally investigated a number of very promising quartz veins, some of which were being worked, while work on others was only temporarily deferred by litigation as to title. The veins run from 3 ft. or 4 ft. wide up to as much as 75 ft. wide, which is the width of the vein of the Engineer's Mine on Taku Arm, & the ore shows assay values ranging from \$30 a ton upwards. Besides these more valuable ores, there is an immense quantity of low-grade ore, all of which will ultimately be worked as wages & the cost of living decrease. It is not merely gold ore which is found throughout the enormous territory which is tributary to our railway; but, as before stated, nearly every known mineral, especially copper. The copper discoveries at White Horse, the terminus of our railway, extend at present over an area upwards of 15 miles long & 4 miles wide. Throughout this belt a considerable amount of development work has already been done, & a large quantity of ore is ready to ship as soon as the Government makes the promised waggon-road connecting the mines with our railroad. Much of the ore is sufficiently rich to pay for the cost of shipment to the smelters at Tacoma & other Pacific coast points, & as soon as a sufficient business of this nature develops we intend to run a spur line of 5 or 6 miles in length, connecting our railway with these

White Horse mines. Competent judges who have carefully examined these mines are of opinion that they are destined to rank amongst the largest copper-producers in the world, & that the traffic from this source would alone be sufficient to keep a railway busy in the future. Valuable copper ore has also been discovered in several places in the Atlin district, & of course, copper has long been known to exist in the Copper River, & numerous other places throughout the Yukon Valley. Coal has been opened up near Dawson & at Rink Rapids, & discovered, but not opened up, at a point on our line of survey about 50 miles north of White Horse. This morning I received an account of the discovery of coal, which possibly is more important than any of them. Within 10 miles of our railway, & south of White Horse, coal is said to exist in three distinct veins, one of which is 13 ft. & another 6 ft. thick. I need not say that if that discovery turns out to be as reported it will be an important factor to our railway in reducing the cost of our fuel. In view of the immense importance to our railway of the developments of the quartz-mining industry throughout the Yukon Valley, I gave particular personal attention to this matter last summer; & I can only say that if anybody doubts the permanence of this great valley as a mining country, he has only to take a trip to White Horse, Atlin, & Taku Arm, & see for himself. The country is as yet in its infancy; but already enough can be seen to warrant the confident anticipation that before many years the production of gold & copper ore throughout the territory tributary to our railway will equal that of any country in the world.

The resolution was carried unanimously.

Hon. S. Carr Glynn & W. B. Close were re-elected directors. The other directors are Sir Allen Sarle, director of the London, Brighton, & South Coast Ry., E. Hanson,

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An extraordinary general meeting was then held, at which, on the motion of the Chairman, additions were made to the articles of association to give power to the directors for the conversion of shares into stock.

ISSUE OF MORTGAGE DEBENTURE STOCK.

The Co. recently issued £750,000 5% consolidated 1st mortgage debenture stock, repayable at par on Dec. 31, 1930, but redeemable at 110 by the Co. at any time after Dec. 31, 1920, on giving 6 months' notice & in case of voluntary liquidation.

Following are extracts from the prospectus: The issue has been created to convert into one security all the existing securities of the Co., to provide cash to pay for the second portion of the railway, & for the capital purposes of the Co., & for the purpose of providing that the annual interest payable on the fixed charges shall be at the rate of 5%. The debenture stocks & debentures at present issued are as follows:—

First portion 6% debenture stock.....	£250,000
Second portion 6% debenture stock (part of an authorized issue of £300,000)...	119,830
Second mortgage 6% debentures.....	100,000
	£469,830

Under the trust deeds securing the 1st & 2nd portion debenture stocks the Co. has the right of redemption at £110 for each £100 issued. Notice of redemption has been given, & the existing securities not exchanged under this scheme will be paid off on June 30, 1901. The holders of any part of the existing debenture stocks & debentures may apply for, & will receive, a preferential allotment of £110 of the consolidated 1st mortgage debenture stock in exchange for every £100 of the existing securities held by them. Holders of £431,196 out of the £469,830 existing securities, including the holders of all the 2nd debentures above mentioned, have already agreed to take stock of this issue in exchange for their present holdings. An amount of £474,316 of new stock will be required to be issued in exchange for the old securities that are being converted, thus leaving £275,684 to which subscriptions are now invited.

The railway from Skagway to White Horse is 112¼ miles in length, & the consolidated 1st mortgage debenture stock will be secured as a 1st mortgage upon £752,073 bonds of the local companies owning the railway, & such bonds which will constitute specific 1st charges on the railway from Skagway to White Horse will be vested together with the whole of the capital stock & shares of the local companies in the Railway Share Trust & Agency Co., Ltd., as trustees for the holders of the consolidated 1st mortgage debenture stock.

This Co. was formed in 1898 to carry out & develop certain charter rights & concessions for (inter alia) the construction & equipment of a railway extending about 325 miles from Skagway Harbor, at the head of the Lynn Canal, an inlet of the Pacific Ocean, to Fort Selkirk, on the Yukon River. The charter rights & concessions under which the White Pass & Yukon Ry. has been constructed, are vested in three local companies. These companies & their issued capital stock & shares & their bonds, to be specifically charged upon the sections of the railway owned by them respectively, & deposited in the names of the trustees, are:

	Capital stock & shares issued. Bonds.
The Pacific & Arctic Ry. & Navigation Co., incorporated under the laws of the State of West Virginia, U.S.A. £206,185	£169,073
The British Columbia Yukon Ry. Co., incorporated by the Legislature of British Columbia.....	206,185 227,500
The British Yukon Ry. Co., incorporated by the Dominion Parliament....	500,000 355,500
	£912,370 £752,073

The 1st portion of the railway, about 41 miles, from Skagway over the White Pass to Bennett, the head waters of Yukon navigation, was completed & opened for traffic on July 6, 1899; & the 2nd portion, about 71¼ miles, which extends from Bennett to White Horse on the Lewes River, below the White Horse Rapids, was completed & opened for traffic over its entire length early in Aug. this year. At White Horse direct connection is made with the steamers of the Canadian Development Co., with which Co. an advantageous through traffic agreement has been entered into, so that during the season of navigation passengers & freight from Victoria, Vancouver or Seattle can reach Dawson City in about a week, or from Skagway in about 3 days. With these facilities it is not at present considered necessary to extend the railway.

From the date of the opening of the 1st portion of the railway in July, 1899, up to Dec. 31, 1899, a period of about 6 months, the net earnings amounted to \$569,445, equivalent at the rate of \$4.85 per £ to £117,411. The whole length of 112¼ miles was opened for traffic last Aug., & the net earnings for the current year to date amount to over £200,000. The above earnings include no charge for construction material which was carried free. The annual interest on the consolidated debenture stock will be £37,500.

Farewells to C. M. Hays.

On Dec. 17 C. M. Hays, the retiring General Manager of the G.T.R., was entertained by the Montreal Board of Trade at a farewell dinner at the Windsor Hotel, over 200 prominent business men & others being present. President R. Mackay occupied the chair.

In responding to the toast of his health, Mr. Hays said that he appreciated more than he could tell the evidence of their good-will. The period of his residence in Canada had been one fraught with affairs of much moment to the G.T.R., they had occupied him so constantly, he had been away from home so much, & when he had been at headquarters they were so remote from the business centre of the city that he had not had the opportunity he could have wished for closer social relationship with the business men. Now, when he seemed to be approaching a time when more leisure afforded itself, & when removal from the old headquarters brought him into closer contact with them, he was to say good-bye. But, perhaps, after all, our best impressions, our clearest ideas of those with whom we associated, were formed, not in our social relations, but in our business intercourse, & in that respect, he considered himself most fortunate, so far as his relations with the Canadian public were concerned. He had made many friendships, which he hoped would continue for the rest of his life. As to Canadian business men, he had formed a regard for their sterling merit, for their reasonableness & law-abiding qualities that he should continue to remember long after leaving here. He should have none but the most pleasant recollections of his business intercourse with the people of Montreal, & it would be long before he should ever cease to feel the deepest interest in anything that affected the welfare of Canada, her commerce & her railways. He expressed the hope that the Dominion would continue to be prosperous, & said that if, in his new field of labor, he could in any way knit more closely the bonds of friendship which existed between Canada & the U.S., his utmost endeavor would be in that direction. He thanked them for their extreme kindness to him, & as Canadians were proverbially travellers, he hoped to see many of those present on the Pacific Coast, & he should take it as a personal grievance if when there they did not give him the opportunity to take them by the hand &

help him to renew his interest in the kind friends he had left behind in Canada. He concluded by wishing his Montreal friends long life & prosperity.

Hon. S. Fisher, Minister of Agriculture, in the course of his reply for the Dominion Parliament, said he was not prepared to say what would be done with regard to making Montreal a free port, but the harbor improvements commenced by the present Minister of Public Works would be vigorously prosecuted until Montreal was made the best Atlantic port on the continent of America. Transportation interests had largely occupied the time & attention of the last Parliament, as it must also of the next. We had to-day the great railways of the country connecting more than ever before the great inland seas with the port of Montreal, & the rates of transportation had been largely reduced on these railways by good management, such as Mr. Hays had applied to the G.T.R., & by the improvement in the track & in the rolling stock of these corporations. There was still, however, a great obstacle which must be removed before Montreal could stand on equal footing with other ports. The channel of the St. Lawrence must be improved. This was imperative. He had had an experience last summer in connection with the shipment of hay to South Africa which had opened his eyes to the present disabilities of the route. High rates of insurance so militated against the St. Lawrence route that the Government had found that it was very much cheaper to ship the hay to Cape Town from St. John or Halifax, so much cheaper in fact that the difference in the cost of shipment from, say St. John & Cape Town, & Montreal & Cape Town, would pay the freight charges out to the Cape. The farmers of the land were deeply interested in this transportation problem. The new Parliament would need to give its closest attention to their solution.

The Minister of Railways, Hon. A. G. Blair, in responding to the toast of the railway interests, paid a very warm tribute to Mr. Hays. He felt nothing but respect & admiration for Mr. Hays, whom he regarded as one of the great railway captains of the day. He remembered Mr. Hays' regime with especial pleasure, for it was during that period that the Intercolonial was extended into Montreal. He took a peculiar pleasure in recalling this fact because he believed that there was now no question of the wisdom of that step. It had now, he believed, passed from the controversial stage. It was an act, he was convinced, which would redound to the welfare of Canada. It was eminently a business arrangement. When he approached Mr. Hays to do business with him, he had found him a man ready & willing to listen to reason. The arrangement which the Government had entered into was one of mutual advantage to the G.T.R. as also to the I.C.R. Canada was to-day reaping the beneficent results of this policy. While for years the I.C.R. had been in a backward state, it was now running into a great city, & its business had immensely increased. Within a few years the great interests of the West would be dependent, not on one railway system, but on a dozen. Many other roads would be built in the near future. Some people said that the Government should stop the aid which it gave to Canadian railways. If this were done, he believed it would result in staying the progress of this great Dominion. The I.C.R. was not going to stop as a railway in the city of Montreal. Why not have it connected with Sault Ste. Marie on one hand & Cape Breton on the other. The I.C.R. was now entering on a period of growth greater than was ever dreamed of. We are told that we have the right, that it is our heritage to transport the products of the West, not our products alone from the West to the sea. Why should we therefore not enter upon the promotion of schemes which

shall guarantee our right to handle these products? Between our railways & canals we may well look forward with confidence to the time when our hopes along these lines may be realized. There ought to be a grand future for Montreal. The Government was alive to the importance of this transportation problem. Advancement was the order of the day. Canadians hardly yet knew how great a country was theirs.

G. B. Reeve, General Manager-elect, also responded. He said that previous speakers had covered the ground so thoroughly that there was very little further to say in the way of eulogizing Mr. Hays. Every change & removal which Mr. Hays had made during his administration had cut him to the heart. Mr. Hays had found the G.T.R. on the very verge of bankruptcy. Since he had taken hold he had raised the value of its securities to the extent of \$80,000,000. On Mr. Hays' arrival, G.T.R. securities were looked upon with great suspicion & the road was in anything but a satisfactory condition. He was sorry that the British Government had not seen fit to show Mr. Hays some mark of appreciation. He understood, however, that this was Mr. Hays' own fault, & that he could have had such an honor had he chosen to qualify. Instead of bidding good-bye to Sir Chas. M. Hays, therefore, he said farewell to plain C. M. Hays.

C. Drinkwater, Secretary & Assistant to the President of the C.P.R., also spoke appreciatively of Mr. Hays' work.

"THE OFFICIAL FAMILY."

A few days later Mr. Hays was again entertained at dinner at the Windsor Hotel, Montreal, on this occasion by the chief officials of the Grand Trunk Ry. system & of the Central Vermont Ry. George B. Reeve occupied the chair, & proposed the toast of the evening—"Our Guest"—in well-chosen & happy remarks, which were replied to feelingly by Mr. Hays. The speeches were of an informal description, the dinner partaking of the character of a family gathering. There were interchanges of happy thought, & many references to the high esteem in which Mr. Hays was held by all, & the general regret occasioned by his severing his connections with the G.T.R. Regrets were received from Governor Smith, President of the Central Vermont, for his inability to be present, having left for a winter's sojourn in Italy. The following were present: A. E. Beckett, Montreal; G. T. Bell, Montreal; J. Bell, Belleville; D.

Brown, Chicago; J. Bryce, Montreal; A. Butze, Montreal; C. Clarke, Detroit; W. Cotter, Detroit; S. W. Cummings, St. Albans; J. J. Cunningham, Montreal; J. E. Dalrymple, St. Albans; W. E. Davis, Montreal; C. E. Dewey, Stratford; M. C. Dickson, Toronto; F. W. Egan, Toronto; H. G. Elliott, Montreal; L. J. Ferritor, St. Thomas; E. H. Fitzhugh, St. Albans; W. P. Fitzsimons, Detroit; J. H. Hanna, Hamilton; G. H. Hanna, Montreal; C. A. High, Portland; J. Hobson, Montreal; F. A. Howe, Chicago; Dr. Hutchison, Montreal; R. H. Ingram, St. Albans; G. C. Jones, Montreal; R. S. Logan, Montreal; J. W. Loud, Montreal; F. H. McGuigan, Montreal; Prof. McLeod, Montreal; W. McWood, Montreal; E. W. Meddaugh, Detroit; F. W. Morse, Montreal; J. H. Muir, Detroit; D. O. Pease, Montreal; C. Percy, Montreal; H. Philips, Montreal; L. J. Power, Montreal; J. Pullen, Montreal; J. E. Quick, Toronto; A. F. Read, Montreal; G. B. Reeve, Montreal; M. M. Reynolds, St. Albans; A. E. Rosevear, Montreal; W. H. Rosevear, Montreal; F. Scott, Montreal; C. E. Soule, St. Albans; M. C. Sturtevant, Montreal; W. R. Tiffin, Allandale; G. W. Vaux, Chicago; W. Wainwright, Montreal; H. W. Walker, Montreal; F. J. Watson, Montreal; A. White, Toronto; C. M. Wilds, St. Albans; H. A. Woods, Detroit.

During the evening Mr. Hays was presented with a handsome album. Mr. Davis made the presentation, supplemented by suitable expressions from Mr. Wainwright. The leaves of the album are 11 by 14 ins., made of 16-ply cardboard, covered with English antique cloud grey paper, the edges gilded. The first page of the album bears a beautifully engrossed inscription, which reads as follows: "From the Official Family of the Grand Trunk & Central Vermont Ry. Systems to Mr. Charles Melville Hays, on his retirement from the management of these properties to accept the Presidency of the Southern Pacific Co., Dec., 1900." On the face of each of the other leaves appear excellent portraits of the officials of both the Grand Trunk & Central Vermont Railway Systems, preceded on the 2nd, 3rd & 4th pages with large portraits of Sir Charles Rivers-Wilson, President, J. Price, Vice-President, & G. B. Reeve, Mr. Hays' successor, now 2nd Vice-President & General Manager. The last leaf of the album contains a splendid view of the residence occupied by Mr. Hays during his stay in Montreal. On the reverse side of the album leaves appear photographic gems of scenes along the line of

the G.T.R. System, chosen from thousands of negatives which have been secured during Mr. Hays' regime. The collection embodies scenes of land & water, illustrating the magnificent scenery located on the line, & the charming resorts that have been & are being developed in the interests of the Co. Portland to Chicago is portrayed in artistic effects. Surf scenes from the Atlantic sea coast, towering peaks in the White Mountains, the quiet pastoral scenes along the line between Montreal & Toronto, & typical scenes from the highlands of Ontario, as well as views of some of the great engineering feats, such as the St. Clair tunnel, the steel arch bridge of the Niagara gorge & the Victoria Jubilee bridge over the St. Lawrence at Montreal, are included. The tout ensemble is a novel & most interesting creation, that will in the future recall pleasant memories of old associations to Mr. Hays. The album is bound in genuine levant morocco, with padded covers, & handsomely mounted in sterling silver. As an artistic production & a demonstration of photographic art it is probably unsurpassed. Mr. Hays made a most felicitous acknowledgment.

Mr. Hays & his family left Montreal Dec. 23 for St. Louis, Mo., where he intended spending a week, & then leaving for New Orleans to go over the Southern Pacific to San Francisco.

On his way through Toronto he was met by A. White & a number of other local officials, who gave him a hearty send-off. He thanked them for their loyal support, expressing the hope that the same would be given to Mr. Reeve.

G.T.R. Fast Running.—On Dec. 3, the G.T.R. Eastern Flyer made a record run from Toronto to Montreal, covering the 333 miles in 7 hours 45 mins., including stoppage. It was an unusually heavy train, consisting of 6 coaches—under ordinary circumstances it consists of 4—& there were altogether 20 stops on the trip. Two of the stops were due to changes of engines, & they occupied 8 minutes. Two other stops were for the purpose of taking water, & they consumed about 6 minutes. The most remarkable part of the run was between Brockville & Montreal, 127 miles. The actual time occupied was 160 minutes. There were 11 stops, 10 at stations & 1 for water, averaging about 3 minutes. Deducting 32 minutes dead time from the 160 leaves actually 128 minutes for the 127 miles. This is regarded as an exceptionally fine run for that distance.

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Ref'd to G.T.R. Jan'dd. 1901

A GRAND TRUNK RY. STANDARD TRAIN.

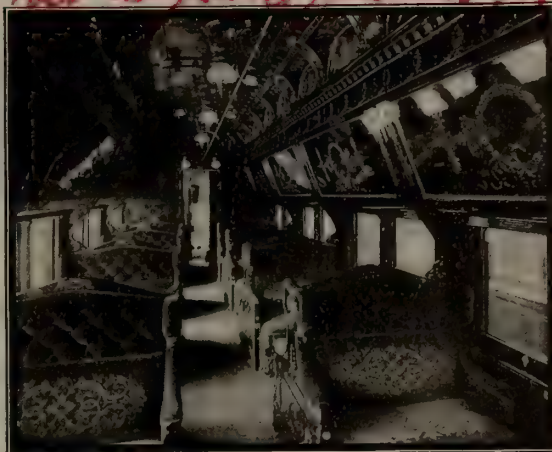
The C.P.R. & the I.C.R.

The Minister of Railways, Mr. Blair, was entertained at dinner by the Liberals of St. John, N.B., Nov. 30. In the course of his speech he said: "It has been said that the announcement which was recently made by the C.P.R. concerning winter trade was the result of my having been turned down by the Premier & my colleagues. The implication was made that the stand which I had taken had been abandoned. I am prepared in the administration of the office which I have the honor to hold to treat the C.P.R. in all its interests & upon all questions that may arise as if it had not fought me to the death on Nov. 7. My references to-night are dragged from me because I cannot allow the impression to go abroad that the Premier or my colleagues have changed my attitude upon this question, or that it is changed. If the C.P.R. desired its interests to be served here in the best possible way it would have been well if the Opposition press had been muzzled rather than that any declaration should have been forced from me. I cannot allow myself to be placed in any false position, & I want to say that it is not correct to attribute to the Premier or my colleagues any intention to have me yield in my attitude upon this question. They have not done so; they have not tried to do it. I had not even heard of it until I read it in the papers. I am, of course, willing at all times to negotiate with the C.P.R. upon any matter affecting its interests, & in a perfectly friendly way. I would go out of my way to meet it in such a spirit; but I am not going to surrender what I have always contended were the vital interests of the Intercolonial, or to recede from the position I have publicly taken." Mr. Blair said he did not wonder at the attitude taken by Mr. Shaughnessy, because that gentleman had been badly advised. He was deceived through the attitude of the St. John Common Council & members of the Board of Trade. There was no reason why the C.P.R. & the I.C.R. should not stand in the friendliest relations towards one another. They have many interests in common, & not necessarily any grounds for antagonism. The field is going to be broad enough & productive enough to afford business for both. This will certainly be true if the policy of the Government is carried out, & he felt that it would be carried out, because it was going to have 15 years at least in which to carry it to fruition.

The frequency of train robberies in the systems operating in the southern & Western States has led to very stringent measures on the part of the companies. The Union Pacific Ry. has put armed guards on its trains carrying money or bullion. The Burlington offers a standing reward of \$1,000 for the capture or killing of a train robber. The Iron Mountain, in conjunction with the Pacific Express Co., has offered \$500 for the arrest & conviction of train robbers & 10% of the stolen money returned.

Westinghouse Air Brake Co.

At the recent annual meeting at Wilmerding, Pa., the report showed that the income for the past fiscal year was \$8,530,905.21, & disbursements, \$5,011,706.46, leaving a net profit of \$3,519,198.75. The disbursements include \$3,534,710.03 for material & wages, & the remainder, \$476,996.43, covered the purchase of valuable patents relating to electric braking & heating apparatus for street cars, alterations of buildings, installation of new power plants, & general expense. The electromagnetic braking & heating apparatus, covered by the patents referred to, has been tested thoroughly, & arrangements have been made



INTERIOR SLEEPING CAR RUN ON G.T.R. TRAINS 3 AND 4.

to begin its manufacture on a large scale, as there is believed to be a good demand in store for this new invention, based on the greater safety to the public & the comfortable heating of cars, obtained without the use of any of the current from the power circuits. The friction draft gear, the right to manufacture which has been acquired by the Co., has been applied to nearly 3,000 steel cars, as well as to many locomotives. The rapid deterioration of the ordinary type of brake, due to the heavy steel & other cars, has caused the advantages of the friction draft gear to be appreciated by railways, & there is said to be an increasing inquiry for this apparatus that is indicative of much larger business from this source. Practically all of the unimproved property available has been utilized by the Co. for the erection of dwellings of a suitable class that have been readily rented at a rate that provides a satisfactory return for the investment. The foreign business of the Co. is said to be in a very satisfactory condition & growing rapidly.

"Trains Three & Four" is the title of a well printed & beautifully illustrated booklet, describing these fast & luxurious trains on the G.T.R., & briefly their routes. It is thoroughly up to the standard of the Co.'s Passenger Department literature. Three of the views in it are reproduced on this page.

Brotherhood of Railway Trackmen.

The third biennial session was held at St. Louis, Mo., early in Dec. The following officers were elected:—J. T. Wilson, St. Louis, Grand President; A. B. Lowe, Kingston, Ont., 1st Vice-President; J. W. Davenport, Sandifer, N.C., 2nd Vice-President; W. W. Haygood, Atlanta, Ga., 3rd Vice-President & National Organizer; J. C. Lambert, Fort Worth, Tex.; J. S. Eastman, Pompanoosuo, Vt.; C. Boyle, Merrickville, Ont., & S. E. Hawes, Augusta, Ga., members of Executive Committee. J. T. Wilson, Grand President, will also act as Secretary & Treasurer, employing his own assistants, in order to keep down the expenses of the organization. T. G. Manamon, of Vancouver, B.C., was nominated for the Executive, but declined to stand. St. Louis was again selected for the next convention in 1902.

By the bursting of a crown sheet on locomotive 702 on the Wabigoon section of the C.P.R., Nov. 17, Fireman J. D. Mullins was scalded so badly that he died in a short time.

Picketing as a means of conducting strikes has been legalized by the British courts in dissolving the injunction secured by the Taff Vale Ry. Co. against the Amalgamated Society of Railway Servants.

Referring to a recent story from New York that a combination of extensive railway interests in the Western States was on the tapis, which would result in the Canadian Pacific, Northern Pacific, Great Northern, Erie, & the Chicago, Milwaukee & St. Paul railways being operated in harmony as a transcontinental line between Vancouver & New York, President Shaughnessy, of the C. P. R., said:—"While there is the very best of feeling between all the roads mentioned & the Canadian Pacific, there is no combination of any kind. The roads mentioned may work more harmoniously in the future than in the past, as it is in their interests to do, but there is no truth in the story of a combination & a new transcontinental railway."

Ref'd to G.T.R. Jan'dd. 1901



INTERIOR CAFE-PARLOR CAR ON G.T.R. TRAINS 3 AND 4.

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Enameled Iron Express Signs.

Guaranteed not to fade or in any way to perish from exposure.



No. 1. Size 14 x 26 1/2 inches, including flange at right angle. White letters on blue ground. Lettered on both sides.



No. 2. Size 14 x 26 inches, including flat flange. White letters on blue ground. Lettered on both sides.



No. 3. Size 24 x 3 inches. White letters on blue ground.



No. 4. Size 30 x 3 inches. White letters on blue ground.

These Signs are used largely by the Canadian and Dominion Express Companies and we can refer to Mr. W. S. Stout, Vice-President and General Manager of the Dominion Express Co., and to Mr. J. Bryce, Manager of the Canadian Express Co., as to their quality.

Enameled Iron Signs can be made in any shapes, sizes or colors. Blue and white form the most striking contrast and are the most effective.

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CURRENT TOPICS.

The G.T.R. General Managership.

The retirement of General Manager Hays is not only a serious loss to the G.T.R. Co., but to the Canadian railway service generally & to the Dominion. In the ordinary course of events it was hardly to be expected that he would remain permanently with the G.T.R., the highest office in its service being a general managership, while on the other side of the line there are so many roads with the tempting position of president to be secured by practical men. But it was thought that he would be likely to remain here at least a few years longer, until the various betterments he had planned had been carried out.

In the five short years since Mr. Hays came to Canada he has accomplished great & in some instances marvellous work. The record of this was given so fully in our August issue that we will not refer to it now further than to briefly point out that the physical condition of the property has been enormously improved; the permanent way has been changed in alignment, gradients & structures, so as to permit of the hauling of vastly increased loads & the making of better time; buildings, structures, &c., have been modernized, & one out of three most important works undertaken has been completed, the rebuilding of the Victoria bridge, while similar work on the International bridge & the building of general offices in Montreal are well under way. Equally great improvements have been made in the equipment & in the operation of the line.

In the financial branch excellent paying arrangements have been made with the C.P.R., with the Wabash, & with the Intercolonial for running rights, the Central Vermont & the Chicago & G.T. have been reorganized & put on a sound basis, with the almost certainty that the financial results will be eminently satisfactory, net earnings have been largely increased, & the stock, &c., of the Co. has appreciated many millions during the past five years.

No doubt Mr. Hays was fortunate in taking hold of the G.T.R. just when times commenced to improve & some of the credit for the changed financial position of the Co. must be attributed to that cause, but the larger portion of the improvement is undoubtedly due to the changed methods he introduced & to the work of the able staff with which he surrounded himself.

Mr. Hays' relations with the public have been singularly happy. He has confined himself strictly to his duties as a railway official, has never obtruded in any other capacity & has been uniformly courteous in his administration.

Personally we desire to express our warm appreciation of Mr. Hays' unfailing readiness to co-operate with us in furnishing the latest reliable information about the affairs & operations of the G.T.R. At the very first he realized our desire to publish the fullest & most authentic information possible, & saw that it was to the interest of the Co. to furnish it. In the first interview the writer had with him, Mr. Hays said he fully appreciated the importance of a railway paper securing absolutely reliable information & that he would prefer to be asked for it, no matter how frequently, rather than have incorrect or incomplete matter published. As a result our relations with him have been of a most pleasant nature. No matter how often we requested information, he never advanced the "I can't be bothered" plea, or failed to reply promptly, his practice in this respect being in marked contrast to that of some other railway officials, though we are glad to say they are few in number, who either fail to reply to civil enquiries or answer so tardily that when it does come to hand it is of no use.

In expressing regret at Mr. Hays' return to the United States we are sure we are correctly voicing public opinion in Canada.

The appointment of Geo. B. Reeve to succeed Mr. Hays came as a great surprise, his name not having been among the several which were mentioned by the rumor mongers. When he retired from the General Traffic Managership of the Co. last spring it was thought that he would not enter the railway service again under any circumstances. He had been with the Co. for 40 years, was understood to have amassed a comfortable competence, he received a liberal pension from the superannuation fund, & he had a charming property in Southern California to which he retired with the intention of spending the balance of his life. His selection is a tribute to his undoubted great ability & the appointment has been received with enthusiasm. Though an old servant of the Co., he is one of the new school in his methods, his location at Chicago in the C. & G.T. service has given him an international experience, & there will be no cessation of the vigorous policy of management introduced by Mr. Hays, in which Mr. Reeve took part for over four years. While satisfactory on the ground of efficiency, the appointment is extremely popular with the public & with the officials & employees of the Co.

It may be interesting to reproduce the remarks made by President Sir Rivers Wilson at the semi-annual meeting of the Co. last spring, when he said:—"I am sorry to have to announce to you that our General Traffic Manager, Mr. Reeve, after a long & successful & faithful service of 40 years, is about to retire from our service—he will retire on May 1 next. It is a matter of the most sincere regret to us that he is leaving us, because his services are quite of an exceptional character. He is a man who has been devoted to our interest for very many years. He has brought intelligence of a high order to bear, & the result of his work has been most valuable & most useful to the interests of this Co. I think it is only due to him & it will be only interesting to you, that I should read to you the words of Mr. Hays in announcing to us the most regrettable circumstance of Mr. Reeve's retirement. He writes this:—'Mr. Reeve has filled the position of telegraph operator, agent, train despatcher, soliciting for freight agent, division freight, & finally General Traffic Manager, in which position he has performed the duties of the office energetically & faithfully, & to the credit of the Co. he represents,' & Mr. Hays goes on to say—'I need hardly say I shall part with Mr. Reeve with extreme regret. I have never had an officer associated with me in the position occupied by Mr. Reeve, in whose judgment, zeal & fidelity I placed greater confidence. His long connection with & consequent familiarity with the traffic conditions of the property have made his services highly valuable.' Well, that tribute from Mr. Hays, than whom there is not a better judge on the continent of America, is a very high tribute indeed to the value of Mr. Reeve's services. We shall part with him with the utmost possible regret."

Wide Rail Base.

An important departure, the result of which will be watched with interest, is being made by the G.T.R. on the second track which is being laid between Hamilton & Niagara Falls. The new rail is the American Society of Civil Engineers' standard 80-lb section, in every respect except that 1 in. has been added to the width of the base, & 1/8 in. to the height (in the base), making base of rail 6, instead of 5 in. wide, increasing the bearing surface on a tie with 8 in. face from 40 to 48 sq. in. or 20%. By this very large increase of bearing surface, it is hoped to prolong the wearing

capacity & life of cedar ties from 20 to 25%. The additional steel used in the rail, in order to provide the wider base, makes the weight 90, instead of 80 lbs. per yard.

Government Railway for Manitoba.

Several deputations from Western Manitoba have recently waited on Provincial Premier Roblin, urging additional railway construction. Mr. Roblin is reported as having said that for some reason neither the C.P.R. nor the N.P.R. intended to increase their lines in the Province. He stated definitely that the Government would build a road, but was not prepared to say what the route would be. He would, with his colleagues, give the matter immediate attention, & the road would be constructed in districts where the greatest good would accrue to the greatest numbers. In speaking at Morden recently Hon. R. Rogers said the Government was determined to secure a 10c. wheat rate to Lake Superior, although it might take some time to do so.

The "Soo" Line's Improved Position.

By reference to the half-yearly statement of the C.P.R. Co. to June 30 last, it will be seen that the Minneapolis, St. Paul & Sault Ste. Marie Ry. Co. has been enabled to pay back the balance of interest advanced to it by the C.P.R. Co., amounting to \$638,846.89. This is a very satisfactory showing for the subsidiary line, which is a valuable feeder to the parent system, & which may reasonably be expected for the future to take care of itself, notwithstanding the predictions of the croakers who have been pointing to its construction & acquirement by the C.P.R. Co. as a mistake. We have always looked on the acquirement of the "Soo" line as an evidence of sound foresight on the part of the C.P.R. management, & results are endorsing this opinion.

Extension of the Intercolonial.

At the recent farewell dinner to Mr. Hays in Montreal, the Minister of Railways was very emphatic in expressing his desire to see the I.C.R. extended westward. It will be seen by the report on another page he said the road was not going to stop at Montreal, & predicted its extension to Sault Ste. Marie. It looks as though this question would be a live one during the term of the recently elected parliament.

Acetylene Gas on Steamboats.

Capt. Donnelly, in speaking at the recent dinner of the Canadian Electrical Association in Kingston, said that in inspecting a steamboat a short time since he found it lit by acetylene gas, which was contrary not only to Canadian marine laws, but to all reason, as it can only be safely used in a dry & cool place, & such an atmosphere is not found on a steamboat. This is a matter that steamboat owners will do well to bear in mind.

The Michigan Central Ry. has raised its telegraphers' salaries about 15%.

The Secretary of the Canadian Manufacturers' Association has received a letter from the Department of Railways to the effect that in future before any change in railway rates, classifications or regulations is endorsed by the Government a committee of the Association will be given an opportunity of expressing the views of the manufacturers regarding the proposed changes.

As a train was moving out of a Scotch station, a man in one of the compartments noticed that the porter in whose charge he had left his baggage had not put it into the van, & so shouted out to him:

"Hi, you old fool! What do you mean by not putting my luggage into your van?"

The porter replied: "Ah, man, your luggage is ne'er such a fool as yourself. You're on the wrong train."

RAILWAY APPOINTMENTS, ETC.

Canada Atlantic.—A. E. Campbell, formerly station agent at Aylen Lake, has been appointed agent at Kinburn, vice W. J. Durberville, relieved.

Canadian Pacific.—A widely circulated report that J. A. Sheffield, Superintendent of Sleeping, Dining & Parlor Cars & Hotels, was leaving the Co.'s service, has been denied. He has been relieved of the oversight of the Place Viger & Chateau Frontenac Hotels, the managers of which will hereafter report direct to the General Manager. The other hotels of the Co. will remain under him, & he will now have more & much needed time to attend to the other duties of his position.

A. V. Fabien, of the General Passenger Department, has been appointed Excursion Clerk, succeeding A. C. Shaw, appointed acting General Agent of the Passenger Department at Chicago.

F. W. Peters, heretofore Assistant General Freight Agent of the Kootenay & Boundary lines at Nelson, has been appointed Assistant General Freight Agent of the Pacific Division at Vancouver, vice Allan Cameron, who has

been appointed Asiatic Manager of the Oregon Ry. & Navigation Co. at Hong Kong.

H. D. Macdonnell, heretofore Travelling Freight Agent at Nelson, has been appointed Assistant General Freight Agent Kootenay & Boundary lines, succeeding F. W. Peters, promoted.

Geo. Stephen has been appointed Travelling Freight Agent at Nelson, succeeding H. D. Macdonnell, promoted.

Jas. Bonner has been appointed Assistant Auditor of Freight & Telegraph Receipts.

A. A. Goodchild, heretofore Assistant Auditor of Disbursements, has been appointed Auditor of Statistics.

Central Vermont.—R. H. Ingram having resigned to accept the position of Secretary to President Hays, of the Southern Pacific, W. H. Chaffee has been elected Clerk & Treasurer of the C.V. Co.

E. D. Nash has been appointed Assistant Superintendent Southern Division at New London, Conn., vice W. T. Sutphen, assigned to other duties. Mr. Nash was Trainmaster, & has been succeeded by J. Keefe.

Grand Trunk.—W. Wainwright, heretofore General Assistant, has been appointed

General Assistant & Comptroller. In addition to the duties he has been performing, parliamentary work, &c., he will have supervision of the financial departments of the Co.

F. Scott, heretofore Assistant Treasurer of lines east of the Detroit & St. Clair rivers, has been appointed Treasurer, vice C. Percy, resigned.

R. S. Logan, heretofore Secretary to the General Manager, has been appointed Assistant to General Manager.

H. F. Tilley has been appointed ticket Agent at Niagara Falls, N.Y., vice G. W. Wood.

W. J. Gilkerson has been appointed Travelling Passenger Agent at Chicago, Ill., vice F. S. Capron, resigned. M. J. Corcoran has been appointed Travelling Passenger Agent at Chicago, vice E. B. Rowland, resigned.

The following agents have been installed: North Yarmouth, C. W. Merrow; Oakville, M. H. Hammond; Bluevale, C. McGuire; Blyth, R. J. Martin; Brent Creek, H. Megivern; Belsay, F. E. Thomas; Davison, L. B. Chrouh; Nunica, W. L. Kerr; Harvard, G. R. Sillaway; Middleton, W. J. La Due; Pompei, M. E. Hathaway; Gooding, H. H. Earl; Fort Gratiot, Freight, & Port Huron,



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These Jacks are made with Malleable Iron Frames, Steel Pawls, Machinery Steel Bearings and Pivots, forged Steel Rack. The wearing parts are removable and readily renewable at slight expense. The rectangular base gives great lifting strength and fits into close quarters better than other shaped stands. Adaptable to either high or low set loads.

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BREWERY,

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Fine

ALES, EXTRA PORTER

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THE WONDERFUL MEDICINE

They relieve Distress from Dyspepsia, Indigestion and Too Hearty Eating: are a perfect remedy for Dizziness, Nausea, Drowsiness, Bad Taste in the Mouth, Coated Tongue, Pain in the Side, TORPID LIVER.

They regulate the Bowels.
They Cure Sick Headache.
A Single One Gives Relief.

WANTED

A case of bad health that R·I·P·A·N·S will not benefit. R·I·P·A·N·S, 10 for 5 cents, or 12 packets for 48 cents, may be had of all druggists who are willing to sell a low-priced medicine at a moderate profit. They banish pain and prolong life. One gives relief. Accept no substitute.

Note the word R·I·P·A·N·S on the packet.
Send 5 cents to Ripans Chemical Co., No. 10 Spruce St., New York, for 10 samples and 1,000 testimonials.



Page Woven Wire Fencing on Hull & Aylmer Electric Railway.
THE PAGE WIRE FENCE CO., LTD, WALKERVILLE, CANADA.

TORONTO ENGRAVING CO.
DESIGNERS, ENGRAVERS,
ELECTROTYPERS.
92 BAY ST.

Freight, J. T. Waters; Washington, H. G. Henderson.

Great Northern of Canada.—W. A. Kingsland has been appointed Auditor. He was in the New York Central audit department for about 10 years.

Intercolonial.—Early in Dec. there were a lot of daily press rumors about changes on the I.C.R., to the effect that C. Schriber, Deputy Minister of Railways, was about to be superannuated, that A. Davis, C.E., of Montreal, was to be appointed General Inspector of the I.C.R., & that W. Wainwright, or F. H. McGuigan, of the G.T.R., would succeed D. Pottinger as General Manager. All of them were denied by the Minister of Railways. The absurdity of the rumor about Messrs. Wainwright & McGuigan should have been its own contradiction, as neither of them would leave better positions for the less satisfactory service of a Government road.

Michigan Central.—T. C. Beal has been appointed Travelling Freight Agent, with office at Chicago, vice H. Shearer.

Minneapolis, St. Paul & Sault Ste. Marie.—G. R. Huntington has been appointed General Superintendent, with headquarters at Minneapolis. F. W. Curtis has been appointed Superintendent Wisconsin & Peninsula Division, vice G. R. Huntington.

New York Central.—W. Randolph has been appointed Excursion Manager with headquarters at 377 Main street, Buffalo. His territory comprises the country tributary to the main line of the N.Y.C. from Syracuse to Buffalo & Niagara Falls, & the western division branches.

Northern Navigation Co.—J. R. Promberger has been appointed Manager, with headquarters at Collingwood. For about a year he has been Freight Agent of the C.P.R. at Fort William, having gone there from Milwaukee.

Northern Pacific.—General Superintendent Kimberley having retired on account of ill health, Assistant General Superintendent Law has been promoted to succeed him.

Richelieu & Ontario Navigation Co.—H. F. Chaffee, heretofore City Ticket Agent at Montreal, has been appointed Western Passenger Agent at Toronto, effective Feb. 1.

J. F. Dolan, City Ticket Agent at Toronto, has been appointed to succeed H. F. Chaffee as City Ticket Agent at Montreal. Effective Feb. 1.

Mainly About People.

M. R. Davis has been appointed Inspector of Hulls & Equipments of Steamboats, with headquarters at Kingston, Ont.

H. Phillips, who was travelling secretary to C. M. Hays on the G.T.R., has gone with him to the Southern Pacific.

J. J. Anderson, heretofore C.P.R. Ticket Agent at North Bay, has been appointed Ticket Agent for the T.H. & B.R. & the C.P.R. at Hamilton.

Mrs. Magrath, wife of the Land Commissioner of the Alberta Ry. & Coal Co., at Lethbridge, is spending the holiday season with her mother, Lady Alexander Galt, in Montreal.

F. E. Ward, at one time employed in the G.T.R. offices at Montreal, has been appointed General Superintendent of the Seattle & Northern division of the Great Northern Ry.

A. E. Donville, Manager of the St. Thomas Car Wheel Co.'s works at St. Thomas, Ont., has been appointed General Manager of the Griffin Car Wheel Co. at Barrow-in-Furness, Eng.

H. C. Hammond, of Osler & Hammond, Toronto, & of Osler, Hammond & Nanson, Winnipeg, & President of the Calgary & Edmonton Ry., spent part of December in Winnipeg on business.

W. H. Chaffee, recently appointed Clerk & Treasurer of the Central Vermont Ry., is a native of St. Albans, Vt., & has been in the Treasurer's Department for some time. He was formerly in the G.T.R. service in Montreal.

J. L. Weller has been appointed Engineer of the Welland canal, vice W. G. Thompson, resigned. Mr. Weller has recently been in charge of the Government work at Port Colborne & was formerly Assistant Engineer of the Cornwall canal.

W. Stitt, Assistant General Passenger Agent of the C.P.R. at Winnipeg, will leave early in Jan. for Australia to look into matters connected with the Co.'s passenger business. He will return via China & Japan & will be absent about four months.

Sir Wm. Van Horne, C. R. Hosmer, R. B. Angus, E. B. Osler, & W. D. Mathews, all directors of the C.P.R., are applying for a Dominion charter for the Pacific Coal Co., Ltd., with a capital of \$4,000,000, & head office at Montreal, to carry on business as colliery proprietors, coal & coke manufacturers, smelters, etc., in the Northwest.

J. N. Hill has been elected President of the Montana Central. This is believed to be one of the steps in the plan of J. J. Hill, President of the Great Northern system, to relieve himself of the burden of the management, taking for himself the Chairmanship of the directorate. L. W. Hill has been made President of the Eastern Minnesota, & it is thought President J. J. Hill will retire in favor of his sons from the presidency of the Great Northern.

Frank Scott, recently appointed Treasurer of the G.T.R. lines east of the Detroit & St. Clair Rivers, has been in the employ of the G.T.R. since 1879. He entered the Audit department as a clerk in 1879 & was transferred to the Treasurer's department & appointed Secretary Stores Committee & Board of Audit in 1892. In 1893, when C. Percy was made Treasurer, to succeed R. Wright, Mr. Scott was promoted to the position of Assistant Treasurer, which position he has filled ever since, until Mr. Percy's resignation gave him the Treasurership. In 1897 he was also appointed Secretary of the Superannuation Association.

Wm. Wainwright, recently appointed General Assistant & Comptroller of the G.T.R. System, was born in Manchester, Eng., April 30, 1840. He was educated in his native city & entered the service of the Manchester, Sheffield & Lincolnshire Ry., as junior clerk in the accountant's office, in 1858, subsequently becoming senior clerk & Secretary to the General Manager, resigning these positions at the suggestion of Sir E. Watkin, then Chairman of the M.S. & L.R., & Superintending Commissioner of the Grand Trunk Ry. He came to Canada in 1862 as senior clerk in the Chief Accountant's office of the G.T.R. in Montreal, which position he held one year, & was thereafter successively 3 years Managing Director's Secretary, 6 years senior clerk Managing Director & in charge of Car Mileage Department, 8 years & 5 months General Passenger Agent, May, 1881 to Jan., 1891, Assistant Manager, Jan., 1891 to May, 1896, Assistant General Manager, May, 1896 to Dec. 31, 1900, General Assistant. From April, 1883 to Sept., 1885, he was also General Manager of the North Shore Ry. He is a director of the Guarantee Co. of North America, & of the Montreal Telegraph Co., also a Director & Vice-President of the Richelieu & Ontario Navigation Co., & Vice-President of the Grand Trunk Insurance & Provident Society, & of its Superannuation Society. In religion he is an Anglican. He married first, in 1867, Rosabelle Hilda, daughter of R. Arnold, of Toronto, who died in 1876, & secondly, Mary Emily, sister of his first wife. He resides at 165 Metcalf St., Montreal, & is a member of the St. James & Rideau clubs.

Dominion Atlantic Railway Meeting.

A special general meeting was held at 6 Great Winchester St., London, Eng., Dec. 14. Mr. Kemp, who presided, in the course of some preliminary remarks referred to the way in which the Co.'s traffic was steadily growing, & to his own & to his colleagues' faith in future development. They believed good work was being achieved for the large territory which their system served. The directors desired to take powers mainly for the purpose of mortgaging the Co.'s fleet when they thought necessary, & they also thought it would be convenient at the same time to ask for further powers to issue the balance, £90,000, of the 4% 2nd debenture stock. Mr. Kemp referred to the negotiations which took place in the spring & summer with the Yarmouth Steamship Co., with a view to the acquisition by this Co. of that Co.'s vessels. Reference has been made before to the severe competition to which the Co. had been subjected; & in accordance with the shareholders' wishes, Mr. Ronald went to Canada shortly after the last annual meeting. The directors very carefully considered their colleague's report on his return, & they agreed with him that the best method of procedure was to make to the Yarmouth Co. an offer for the purchase of all its ships, &c., subject to the shareholders' consent. They offered the Yarmouth Co. in the end \$350,000. The Yarmouth Co. actually introduced a bill into the Dominion Parliament seeking powers to sell their undertaking to this Co. On June 26 a resolution was passed by the Yarmouth Co. declining this Co.'s offer, but in July the President of the former Co. put himself into personal communication with the directors of this Co. He (Mr. Kemp) was introduced to that gentleman by one of the most important stockholders in the Co., & at the suggestion of the President of the Yarmouth Co. the Board somewhat altered its terms, offering \$250,000 in cash, instead of \$175,000, & the balance, \$100,000, (secured on the Yarmouth Co.'s ships), to be paid in 2 years instead of 3, & the rate of interest to be 5% instead of 4%. According to the President of the Yarmouth Co., the matter was practically agreed & the directors were assured that they would have no further trouble. Whatever this gentleman's intentions might have been, he could only say that when they waited on his Co., in Nova Scotia, to take steps to carry through the arrangement, they were told that the President had been neither authorized nor instructed to agree to terms. The directors were proceeding on the policy, expressed to the shareholders several times, of confirming in the hands of this Co. the control of its trunk business.

The several resolutions submitted to the meeting were passed unanimously.

T. R. Ronald, Vice-President, in addressing the meeting, spoke of the satisfactory condition of the Co.'s property.

The following resolution was carried unanimously:—"That this meeting, having heard the report of the directors as to their negotiations for the acquisition of the Yarmouth Steamship Co.'s vessels & business, & the course of such negotiations, hereby approves of the action of the directors in relation thereto, & that the best thanks of the proprietors be given to the directors in connection therewith." The meeting terminated with a vote of thanks to the officers of the Co.

Not Up-to-Date.

Railway Agent—Our railway, madam, is strictly up-to-date in every respect.

Madam—Nonsense! Look at this woman on your excursion folder. Her sleeves have been out of style for three years.

The Midland Blast Furnace.

On Dec. 18, on the invitation of the Canada Iron Furnace Co., a party of nearly a hundred visited Midland, Ont., to attend the opening of the Co.'s blast furnace there. Several of the directors & a number of others left Montreal the night before, arriving at Toronto in the morning, where they were joined by the other guests, the whole party leaving Toronto at 9 a.m. by special train. A stop was made at Allandale for luncheon, after which a rapid run was made to Midland, which was en fete for the occasion. The special was run round the harbor on the C.I.F. Co.'s spur line to the furnace, where a run was witnessed, after the Premier of Ontario had christened the furnace & the Mayor of Midland had started the tapping. After seeing the run & the making of pig, the guests made a general tour of the works & a number of speeches were delivered. On the return journey another stop was made at Allandale for dinner, Toronto being reached about 9 p.m. The directorate was represented by G. E. & T. J. Drummond, of Montreal, who were indefatigable in their attentions to their guests. A very enjoyable feature of the outing was the presence of their brother, Dr. Drummond, author of "The Habitant," who was very heartily welcomed. Arthur White, Division Freight Agent of the G.T.R. at Toronto, assisted very materially in the arrangements.

The furnace proper is a cylinder or shell of steel set up vertically on 8 cast-iron columns. Its height is 64 ft., & its diameter at the bosh 13 ft. Its capacity per day of 24 hours is about 150 gross tons of iron. The lower part of the furnace, inside of the supporting columns, is protected by a water jacket, through which flows thousands of gallons of water per day for the purpose of cooling the outside of

the brick, & counteracting the intense heat from the crucible or inside.

Certain qualities & quantities of fuel, iron ore, & limestone are selected & decided, & then the furnace is charged. First, 3,600 lbs. of fuel is hoisted up on the steam elevator, where the top fillers or men dump it into the stopper, which has a bell or inserted valve at its bottom. When the entire charge of fuel is dumped into the hopper the valve or bell is lowered by means of steam, & the whole charge allowed to fall into the furnace. This practically constitutes one layer of fuel in the furnace, the inside of which is entirely built up with fire-brick, & shaped somewhat like an ordinary lamp chimney, the lower part being known as the "crucible," the wide or belly part the "bosh," & above this the "stack." Then a charge, consisting of 5,000 or 6,000 lbs. of ore & limestone is hoisted & dumped into the furnace on top of the fuel. Then another charge of fuel & then a charge of ore & limestone, & alternately fuel & ore & limestone continuously as long as the furnace runs, which, in many cases, is from 2 to 6 years. As fast as the stock in the furnace is consumed below it feeds down from the top, where the lever is shown by a try-rod, by the use of which the top-filler or attendant knows when to put in a fresh charge. This covers the top work, but below the work is entirely different.

At the bottom 8 tuyeres, or blow-pipes, are inserted at the crucible, & about 6 ft. from the hearth or bottom. The 8 tuyeres are inserted at regular distances around the crucible, & through them is forced the wind or blast, which causes combustion & melts the ores. Peep-holes protected by mica enable the furnaceman to tell when the slag or metal has reached a proper height in the crucible, & at the proper time he opens a small notch at the bottom of the furnace crucible & allows the

molten iron to pour out. It runs through an open sand trough down the centre of the cast-house, & is then conveyed into side beds through troughs or gutters in the sand, which are known as sows. Opening from the side of this sow are some 20 or 25 open moulds, which are known as pigs, & into these the molten iron is conveyed by means of the sow-channel. Here the metal cools, after which it is broken & carried out. It is then a commercial article known as pig iron. After the entire contents of the furnace crucible is drawn off the notch is plugged with clay & the furnace continues consuming its stock & making iron. Four casts are made each day, at regular intervals of 6 hours, & the day's output runs from 100 to 150 tons of iron, which necessitates the handling & consumption of about 150 tons of fuel, & 250 to 300 tons of ore & limestone, the latter being necessary for fluxing or cleansing the iron.

The two blowing engines are of the vertical type, each with 34-in. steam cylinders & 48-in. stroke. They are massive & powerfully built, & erected on heavy concrete foundations capped with granite. Around the upper portion runs a substantial iron gallery, or platform, which makes all upper parts of easy & safe access. Each engine is capable of blowing 10,000 cubic feet of air per minute.

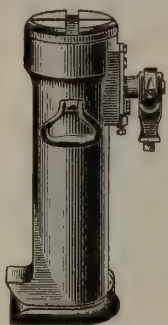
The steam pump equipment consists of two duplex outside packing pumps, 10-in. x 10-in. x 18-in. These are used for furnace & stove circulation, & also for fire purposes. There is also a duplex outside packing steam pump, size 8-in. x 5-ft. x 6-in., which is used for boiler feed purposes. All pumps are erected on a heavy concrete foundation, capped with blocks of granite.

There are 8 steam boilers, flue type, 52-in. in diameter & 25-ft. long, each having two 18-in. flues. The shells are double riveted,

Norton's Ball Bearing Jacks.

Standard Wherever Jacks are Used.

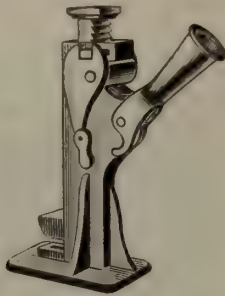
50 STYLES. 8 TO 70 TONS CAPACITY.



40 Ton Jack.



10 Ton Automatic Lowering Jack.



15 Ton Track Jack.



8 Ton Jack.

Guaranteed in every Respect.

Complete Illustrated Catalogue and Discount on application.

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A. O. NORTON,
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Prov. Quebec.

STEEL, PEECH & TOZER,

LIMITED,

SHEFFIELD, ENGLAND.

STEEL AXLES, TYRES, AND
SPRING STEEL.

"PHOENIX" Loco. Spring Steel is the
accepted Standard in Canada.

SOLE AGENTS:

James Hutton & Co., Montreal.

Going West and Northwest.

The best line west of Chicago, if you are going to any point in Montana, Idaho, Washington, Oregon, Kansas, Nebraska, Colorado, Wyoming, Utah, Nevada or California, is the CHICAGO, MILWAUKEE AND ST. PAUL RAILWAY. Direct & short lines between Chicago, Sioux City, Omaha, Milwaukee, La Crosse, St. Paul & Minneapolis. Well equipped, electric lighted, steam-heated trains; free reclining chair cars; compartment & sleeping cars; the finest dining cars in the world. If you contemplate a trip West or Northwest call on any coupon ticket agent in the United States or write A. J. Taylor, Canadian Passenger Agent, 8 King Street E., Toronto, Ont., saying where you are going, about when you will start, how many there will be in the party, & full information, with maps, time tables, & rates of fare will be promptly furnished free. Be sure to ask for your tickets via C., M. & St. P. Ry.

Ship Lamps, Head Lights, Railway Signals and Lamps.

COTTON WASTE—All Grades.

Write for Catalogue.

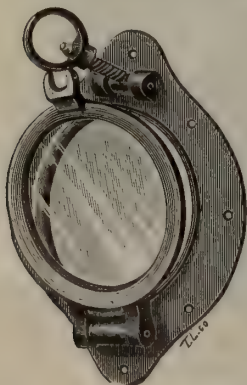
The N. L. Piper Railway Supply Co.,

MANUFACTURERS,

314 Front Street West, - TORONTO.



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MANITOBA,
TERRITORIES.
RAILWAY and
STEAMSHIP
TIMETABLES,
MAPS, Etc.
At Bookstores.
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5c.
**STOVEL'S
POCKET
DIRECTORY.**



& the steam pressure is 90 lbs. They are set in 4 batteries of 2 each. Six boilers are sufficient to supply all the steam required, leaving the other two for facilitating cleaning or repairs. The boilers are heated by the waste gas from the furnace, & so arranged that coal or wood can be burned, as desired.

The chimney is constructed of steel, is 8 ft. 6 ins. in diameter, 174 ft. high, & is erected on a massive square base of concrete, faced with granite. The base is 20 ft. square at the bottom, & 20 ft. at the top, & stands 21 ft. high. The top of the chimney is ornamented with a substantial gallery of steel, which is protected with an iron railing, & which can be reached by means of an iron ladder on the outside of the chimney. This chimney is lined with fire-brick, & the inside diameter is 7 ft.

This tank is used partially as a stand-pipe, and partially as a reserve supply in case of accident to the pumps.

The hoist engine which operates the elevator is double cylinder, size 10 x 12 in., & is erected on a solid concrete foundation, capped with a massive block of granite.

The stone-crushing equipment consists of one gyratory machine, capable of crushing 100 tons an hour, & is driven by a 25-h.p. boiler & engine; & one 10-in. stone-crusher, capable of crushing 25 tons an hour.

The machine & repair shop consists of a brick building 30 x 60 ft. x 11 ft. 6 in. high, erected on a concrete foundation, capped with granite. The shop is equipped with a complete blacksmith shop & tools, carpenter shop with rip & cross-cut saws, band-saw,

dump of stone. Inside of this is filled with solid earth, & the outside consists of the usual wooden pile wharf, which protects vessels from the stone front.

The vessel discharging ore at the wharf delivers it on to the stock ground, immediately in the rear of the furnace elevator. From this pile it is shovelled direct to the furnace barrows.

The pig iron is delivered from the front of the cast house on to the weighing & grading platform, whence it can be handled direct into railway cars or trams for conveyance to the wharf for shipment by water. The slag can either be delivered into a slag car or allowed to spread over the ground & broken up for the purpose of grading up the grounds generally & building wharves, & is run from



THE CANADA IRON FURNACE CO.'S PLANT AT MIDLAND, ONT.

It serves for both the boilers & the hot-blast stoves.

Hot-blast stove equipment consists of 3 fire-brick stoves of the two pass type. They are 16 ft. in diameter, 60 ft. high, & made of 5-16-in. steel, double riveted. The whole are provided with a complete outfit of modern valves, &c., & are erected on a solid concrete foundation, faced with granite, the size of which is 6 ft. 2 in. x 27 ft. 2 in. These stoves are capable of heating the blast up to 1,400 deg. Fah.

The water tank, or tower, is situated on the hill in the rear of the furnace, & is cylindrical in shape, 12 ft. diameter, 40 ft. high, made of 5-16-in. steel plate, double riveted. This tank is erected on a concrete foundation, the top of which is 72 ft. above the bay level.

lathe, & buzz planer, &c., and the machine shop with Bertram 20 x 16 in. lathe, emery stand, & two drilling machines, also a laboratory sample grinder, a 20-h.p. steam boiler & engine, shafting, pulleys, &c., & a steam pump.

The laboratory is situated in the temporary office building, & is fully equipped & up-to-date in every way. The staff consists of two chemists.

The Co.'s water front has an extent of about 1,700 ft., the greater portion of which has an available depth of 20 to 30 ft. of water. The wharf front now has an extent of 1,200 ft., & the solidity of the wharves already built can be judged by the fact that they now carry upwards of 54,000 tons of ore. The entire front of the wharf is faced with a heavy

the furnace at a point most convenient for all these purposes.

The ore used at the Midland furnace is from the Helen mine, from which it is carried over the Algoma Central Ry. to Michipocoton Harbor, & thence by that Co.'s steamers to Midland.

Chateau Frontenac Advertising.—A correspondent of Profitable Advertising is having some fun with the following, which is now running in a number of papers:

"Why go South when you have an ideal winter resort in the Chateau Frontenac, Quebec, Canada, the most attractive and one of the most comfortable hotels in the world, and has the grandest scenery, built at a cost of about a million dollars?"

The question is, who built the scenery at a cost of \$1,000,000?

Hydraulic Dredger for British Columbia.

The Polson Iron Works, Toronto, are building for the Dominion Government a self-propelling hydraulic dredger, which is to be transported to the Pacific Coast in sections & completed there by midsummer of this year. Following is a description as it will be when completed: It is capable of working to a depth of 40 ft. below the water surface & excavating any ordinary material, discharging it by either of three methods, viz., 1st, to shore through a long-distance pontoon pipe; 2nd, through a suspended side-discharge pipe, 85 ft. long, & 3rd, into scows alongside. It is self-propelling at a speed of 8 statute miles an hour. It is fitted with crew's quarters on the upper deck sufficient to accommodate 20 men. The machinery & equipment is first class in every respect & of a substantial description. The dredger, as a whole, is made of the very best materials & workmanship & adapted for permanent service in either fresh or salt water.

The hull is 125 ft. long, 32 ft. wide & 7 ft. 6 in. deep at the side. It is square ended at bow & stern for the purpose of carrying the suction pipe & stern wheel respectively, but has a rake on the underwater body forward & aft, & round bilges, making her easy to propel. The construction of the hull is composite, that is to say, it has steel frames & trusses over the entire length with the plank-

ing & sheathing of wood, by which great strength is obtained, the steel frames being practically indestructible, while the planking can be readily & cheaply renewed at any time when necessary from injury or decay. The hull is stiffened by two internal trusses extended the whole length of the boat, which also serves to carry the deck house & sustain the weight & thrust of the front A frame. It also furnishes the necessary support for the wheel beams at the after end. There are 4 watertight steel bulkheads, & each compartment is fitted with means of removing the bilge water independently. The keel is ingeniously constructed in the form of a gutter, which drains the perfectly flat bottom of the vessel completely & forms an efficient well for the pump suction.

The main engines for driving the dredging pump are of the vertical triple expansion type—13½", 22" & 36" by 21" stroke of the standard marine type. The main dredging pump is centrifugal of improved type, having 20" diameter suction & discharge. The suction pipe is designed to make a cut 50 ft. wide when stationary & 175 ft. wide when swinging on the stern spud. A complete outfit of auxiliary machinery is provided for handling the suction pipe, spuds, anchors, hull, etc. The two boilers are of the Heine water-tube type, having 3,000 ft. of heating surface. The builders guarantee that the dredger is capable of doing effective work at 1,500 feet distance

from discharge with only one boiler in operation. There is a surface condenser of the latest & best construction, having 1,200 sq. ft. of coating surface. The vessel is propelled by a stern wheel 20 ft. diameter, driven by double-horizontal engines 16 in. diameter & 72 in. stroke, of the Polson Iron Works standard patterns, which have been thoroughly tested in service.

The hull will be ready for shipment about the middle of Jan. & will be erected at New Westminster & completed there by W. E. Redway, the Superintendent of the shipbuilding department of the Polson Iron Works.

Electricity for Motive Power on the C.P.R.—With reference to a paragraph which appears on pg. 360 of this issue, copied from the Nelson Miner, stating that the C.P.R. had decided to operate the Rossland, B.C., grade by electricity, we are informed that no decision has yet been arrived at in regard to the matter. Inquiries are being made with a view of ascertaining if it will be in the Co.'s interests to operate the grade by electricity. It will take considerable time to obtain all the information & an early decision is, therefore, not to be looked for.

The Canadian exhibit of railway ties at the Paris Exposition proved of such interest that a new trade may spring up in that line between this country & the Continent. Many enquiries are being made.

Richmond Locomotive and Machine Works,

RICHMOND, VIRGINIA, U.S.A.

BUILDERS OF

Simple and Compound

LOCOMOTIVES.

Adapted to every variety of service.



MANITOBA

The Government Crop Bulletin issued Dec. 12th, 1899, gives the following statistics for the year:

CROPS.		
ACRES.	AVERAGE YIELD.	TOTAL.
Wheat.....1,629,995	17.13 bus.	27,922,230 bus.
Oats.....575,136	38.80 "	22,318,378 "
Barley.....182,912	29.4 "	5,379,156 "
Potatoes...19,151	168.5 "	3,226,395 "

STOCK.

Beef Cattle exported during the year	12,000
Stockers exported.....	35,000
Total value dairy products.....	\$470,559 09

10,500 FARM LABORERS

Came from Eastern Canada to assist in the harvest fields of Manitoba in 1899—and the demand was not fully satisfied.

MANITOBA FARMERS ARE PROSPEROUS.

Farmers erected, last year, farm buildings valued at one and one-half million dollars.

MANITOBA LANDS—For sale by the Provincial Government. Over 1,600,000 acres of choice land in all parts of the Province are now offered at from \$2.00 to \$5.00 per acre. Payments extend over eight years. **Special Attention** is directed to 500,000 acres along the line of the Manitoba and Northwestern Railway at \$3.00 and \$3.50 per acre.

FREE HOMESTEADS are still available in many parts of the Province.

For full information, maps, etc., **FREE**, address

J. A. DAVIDSON, Minister of Agriculture and Immigration, Winnipeg, Manitoba.

Or JAMES HARTNEY, Manitoba Emigration Agt., Union Station, Toronto, Ont.

THE FAVORITE ROUTE

To New York and
.....Philadelphia

GRAND TRUNK RAILWAY

in connection with the

LEHIGH VALLEY RAILROAD

Route of the "Black Diamond Express" hand-somest train in the world.

Leaving Toronto daily (except Sunday) at 9 a.m., Hamilton 9.55 a.m., arrive New York 10.08 p.m.

Fast Night New York and Philadelphia Express, leaving Toronto 6.15 p.m. daily, arrive New York 9.38 a.m., Philadelphia 8.56 a.m.

Pullman Sleepers from Toronto, Hamilton and London to New York and Buffalo to Philadelphia.

Call on Grand Trunk Ticket Agents for tickets and further information, or address

Robt. S. Lewis,

Canadian Passg'r Agt., 33 Yonge St., Toronto.

Geo. R. Chesbrough,

West'n Passg'r Agt., Buffalo, N.Y.

Chas. S. Lee,

Gen'l Passg'r Agt., New York.

A. A. Heard,

Ass't Gen'l Passg'r Agt., New York.

All C.P.R. Agents in

MANITOBA,
ASSINIBOIA,
ALBERTA and
BRITISH COLUMBIA

sell through tickets to the Old Country, cheaper than if passengers bought railway tickets to New York or Montreal, and then re-booked.

They also sell prepaid tickets to passengers coming from the old country, cheaper than the rate obtainable in Europe, and on favorable terms.

Apply to any agent Port Arthur and west, or to

W. P. F. CUMMINGS,

C.P.R. Offices,
WINNIPEG.

Atlantic Type Locomotives.

The Record of Recent Construction No. 20, issued by the Baldwin Locomotive Works, is devoted to Atlantic type locomotives. Since its introduction in 1895 this type has proven its special fitness for fast passenger service, & has been employed for some of the most notable high-speed trains running. The "Record" referred to is devoted to the illustration of this type, giving, so far as possible, in each instance, records of actual performance in regular service.

The Atlantic type of engine came into existence to meet the conditions essential to the modern high-duty express engine, which are summed up in the expression "sustained speed." Not the burst of speed which a little 18 by 24 in. engine occasionally makes over a level stretch, nor the rushing along of an "extra" with 3 or 4 cars, on a special schedule; but the speed that tells, the steady pull day after day, regardless of weather conditions or of extra cars, at a scheduled 50-mile gait, that can be forced 50% when there is lost time to make up. For such work steam is needed & lots of it, but every pound of water evaporated requires a certain quantity of coal, & every pound of coal burnt needs a certain

The weight on the driving wheels is not necessarily increased by the added heating surface, because the weight of the overhanging fire box is carried on the trailing wheels. These are equalized with the driving wheels, to give a smooth, easy motion when running at maximum speed.

If the tractive effort required exceeds the limit of adhesion which can properly be obtained from two pairs of driving wheels, the 10-wheel type should be selected, but it is not necessary nor desirable to use the 10-wheel type merely to obtain greater heating surface. By omitting the coupling rods to the rear wheels, thus reverting to the Atlantic type, better results can be obtained with less friction, & consequently less cost of maintenance.

The "Record" No. 20 contains illustrations of a number of notable Atlantic type locomotives, with the principal dimensions, for the purpose of affording a basis of comparison of the heating surface & weight on driving wheels in locomotives of the 8-wheel or American type & of the Atlantic type. Among those illustrated are two of the Atlantic type recently built for the Canada Atlantic for fast passenger service between Montreal & Ottawa.

The Freight Train of Life.

Men are like a train of cars
That rumble on the track.
With many curves and many jars,
And many drawing back.

Some are the engines that must pull
Upon the heavy grade,
And some are empty, some are full—
Each for its uses made.

Some seem to slide along the way
With never a squeak or jolt,
And some go creaking, as if they
Were sore in every bolt.

And some are billed to go through straight,
And one is here and there,
To be left on some switch and wait
In gloomy days or fair.

Men are as cars that rumble past,
Each has its place and use;
The engine at the head, and, last,
The pitiful caboose.

S. E. KISER.

A movement is on foot among the employes of the C.P.R. & the G.T.R. which may lead to united representations among different classes of workers, with a view to the establishment of a fortnightly instead of a monthly pay day throughout the systems.



CANADA ATLANTIC RY. LOCOMOTIVE, BUILT BY THE BALDWIN LOCOMOTIVE WORKS.

amount of grate area, & thus the problem has resolved itself into two controlling elements: grate area, & muscle wherewith to supply the same with coal.

To maintain great speed high horse-power must be developed, requiring large heating surface & grate area, but for ordinary passenger traffic except on severe grades the adhesion usually necessary to move the train is not great. It is desirable, for the sake of the most perfect combustion, to have as deep a fire box as possible, & not to increase proportionately the weight on the driving wheels by the increase of the heating surface. These desirable features are obtained in the Atlantic type. The boiler can be made of a size suitable to give the required heating surface. A fire box of ample depth & grate area extends back of the two pairs of coupled wheels, the overhanging weight being supported by a single pair of trailing wheels. These trailing wheels are made smaller in diameter than the driving wheels, in order to give the maximum depth of fire box. The coupled wheels are placed as close together as possible, in order to give coupling rods of minimum length, & the boiler can be set as low as the proper clearance above the driving wheels will admit.

The Florida East Coast Ry., whose interests in Canada are looked after by W. A. Fletcher, Western Passenger Agent at Chicago, is sending out a lot of handsome advertising to ticket agents in Ontario & Quebec. In addition to attractive hangers & an hotel list & information folder, there is an album of views, containing over 30 beautiful half-tones of Florida scenery, which is one of the most superb pieces of railway advertising ever put out. The distribution is being made by the Railway & Steamship Folder Display Co., of Toronto, which means that it is being systematically done.

A contract is said to have been entered into between the Canada Atlantic & the Intercolonial railways for the carriage of Western grain to the seaboard at St. John N.B. The contract price is stated to be the same as to Boston, though the distance to St. John is a little longer.

A number of existing electric railway companies & a number of companies intending to apply for incorporation at the coming session of the Ontario Legislature will ask for exemption from the statute prohibiting the running of the cars on Sunday. These requests will be fought by the Lord's Day Alliance.

Among 600,000,000 passengers carried only 206 persons lost their lives on steamboat vessels within the jurisdiction of the U.S. during the last fiscal year, of which 44 were passengers & 162 members of the crews. During the same year there were 383 boiler explosions on land, which killed 298 persons & wounded 456 others.

The Michigan Central R.R. is testing the use of oil to lay the dust along its roadbed. Experiments are being made near Battle Creek, where a stretch of nine-mile track has been sprinkled. Crude petroleum is used at the rate of 1,800 galls. to the mile, the cost being about \$80 a mile. If these tests prove satisfactory next summer the entire roadbed will be kept dustless.

Track Inspection on the N. Y. Central.

By Azel Ames, Jr., Supervisor of Tracks, 2nd Sub-Div. N. Y. C. & H. R. R.

One does not need to have lived long enough to have acquired many grey hairs, to be aware, through his everyday observation, of the great changes which have within his

memory taken place in the transportation business of our country. It is a far cry in events & accomplishment from the stage coach & canal boat to the automobile & the Empire State Express; but the actual lapse of time covered by these tremendous changes is so comparatively slight that, although we take them as calmly as we do our breakfast or our newspaper, we know, if we stop to consider them, that we are daily beholding miracles. While America's natural resources are primarily responsible for her industrial greatness, it is safe to say that to her agriculture, manufactures & trade, the railway has been & is increasingly the most indispensable handmaid; & as witness that they have appreciated her services, there stands to-day our railway system, the greatest of the world.

Just as the shoemaker who started with his last & bench in his little shop 40 years ago has, in order to meet the increased demand for his wares & the competition which that demand has induced, been obliged to expand his small shop into a great factory with rapid & economical machinery; so has the railway, whose business is the manufacture & sale of transportation, had to increase its scope, enlarge its plant & introduce more wholesale methods of doing its business. As the demands put upon it have multiplied, it has been necessary for the railway to improve the tools with which it manufactures the transportation that it sells; & it is but natural that the most crying demand, namely, that for car capacity to carry the passengers & freight, should have first been met. It was quite as obvious that as it requires no more men to

handle a train that will carry 300 passengers than one that in the old days would have carried but 100, the carrying capacity of each train should have been increased. Also it is plain that it will require a more powerful engine to haul a lot of large cars than a few small ones, & it doesn't require a railway expert to demonstrate that if a locomotive pulls a train by the force of the adhesion of its driving wheels to the rail, you must double the amount of weight on those driving wheels if you wish to double their power of sticking to the rail & exerting their hauling force. Thus we see that the tendency has been continually toward increase in weight of trains, & one often wonders when the limit will be reached.

It is this great increase in the size & weight of engines & cars & of the loads that they carry, that has been the most noticeable feature of our railway progress, but right here is the point where the average man (& too often in the past, I fear, many a railway official) has stopped noticing. For the same reasons that one does not, while spending a pleasant evening in a luxuriously furnished house, concern himself with the quality of the masonry in its foundations; so most of those who ride in railway trains, though gratified perhaps by the comfortable furnishing of a passenger coach, seldom have a thought for the foundation of it all—that "court of last resort" in railway operating, the roadway & track.

In the building of American railroads widely different conditions have generally prevailed than in Europe, for while those of the latter country were built chiefly for the needs of an

existing population, and hence could be constructed in a substantial & enduring manner, our own have largely been projected in regions of sparse population, & under traffic conditions so uncertain, that only the smallest possible outlay & cheapest of construction were justifiable in the beginning. In a word, the European roads were built to supply an existing demand, while the American promoters had, in a large measure, to create the demand before supplying it. That the enormous business which their enterprise would develop was little realized by those whose capital & energies built our earlier lines, is strongly evidenced by the almost uniform failure, until within the last few years, of the track to keep pace with the traffic that it has been forced to carry. It is a fact, too little recognized in some quarters, that it has been only the vigilance & hard work of our maintenance of way officers, & their ability "to do with one dollar what any fool could do with two," that has in the past kept a good share of American roadbeds in a decently safe condition to run trains over.

But a new era has opened within the last 10 years. The profits from the earlier railway enterprises were so great that the temptation to build too many was too strong to be resisted, & the decade following the Civil War saw an abnormal increase in railway construction. It has required until the last dozen years for our increase in population & industrial development to bring about approximately those conditions under which the European roads were built. In other words, the country's railway mileage has caught up

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with its growth in other directions, & our operating officers have at last found time to take breath & turn their attention toward putting their roads into condition, not simply to carry the traffic somehow, but to carry it economically. While the overbuilding of the past has caused a competition which has made strict economy necessary, most of our trunk lines have an assured traffic of such volume that they have been able of late years to appropriate enough money to give their track that solidity & permanency which, although involving considerable outlay at first, insure from future decreased cost of repair, a true saving in the long run. Poor track is altogether too expensive a luxury for railways to afford nowadays.

Suppose we have a track where some of the rails, through lack of proper attention, or through being too light for their load, are half an inch low at the joints. Every pound that rolls over those joints falls half an inch, & has to be lifted out of the depression; & when we note that the hundreds of tons that pass over these rails move at great speed we begin to appreciate the mightiness of the destructive forces at work. Consider, too, the shocks & oscillations that are caused to engines & cars by running over track that is uneven in surface or alignment, or which yields excessively either vertically or horizontally under their weight; & when discomfort to passengers, loss of speed, & liability to accident are added in, we find a total which rises up & demands a roadway that shall be as near perfection as possible, as regards safety, solidity & smoothness.

We can almost imagine what the various parts of some of this oldtime bad track—which, of course, does not exist on "our road" any more—might say if they were endowed with speech, & hear some poor old rail exclaim: "Scrap me, if here isn't another of those 'hogs' coming." Bang! & 20,000 lbs. hits him on his battered head.

"What did you let that fellow come on to me so hard for?" he demands of the angle bars that connect him to his neighbor.

"We can't help it," said the outside plate. "My mate is cracked in the middle, & these miserable bolts that are supposed to hold us together are so loose that we can't help you out any."

"You needn't blame us," objected the bolts. "That track-walker didn't half tighten us up this morning, & besides, we can't do everything. Why don't you lay it to the spikes?"

"Who's kicking about us?" asked a number of those rusty individuals. "Here our heads are most cut off by your old flange, & how do you expect us to keep snug against you in such rotten ties as these?"

The oldest tie took it upon himself to answer: "See here! I've been lying in this mud for six years, & I've been almost adzed in two on account of your fellows' loose ways. Besides, I'm only a red oak, & ought never to have been here at all. I'd done pretty well, though, if I had had good clean ballast under me."

"Well," said the rail, "I only hope that the next one of those fellows that goes over us will break a spring-hanger & have to lose half an hour getting blocked up."

It is to prevent all these previously described evil effects of bad track, to render impossible the recurrence of any such imaginary conversations as the foregoing, & to hold its engineering & maintenance-of-way officers & men to the high standards set for them, that the N.Y.C. & H.R.R. Co., in common with other large roads, has instituted & maintained its system of annual track inspection. The inspection this year was made between Oct. 15 & 20, & was the most thorough ever undertaken. Each division of the system is divided for maintenance-of-way purposes into from 2 to 4 sub-divisions, comprising from 150 to 200 miles of track, each being in charge of

a Supervisor of Tracks, who reports to the Division Engineer, & he in turn to the Chief Engineer, the latter being assisted by the Engineer of Track. The sub-divisions are composed of sections of varying length, some covering a yard, some as many as 6 miles of single-track main line, & each in charge of a section foreman, who has his force of track laborers. To all these foremen & supervisors the inspection is the great event of the year, as on its results depend not only their prestige with their superiors & associates, but dollars & cents; for excellence in riding qualities & appearance of the track under their charge are rewarded by substantial prizes. To the section foreman whose section is the best on the sub-division \$3 a month extra pay for the next year is awarded, & if he is so successful as to have the best on the division, this is increased to \$5 a month. The supervisor whose sub-division is the best on his division gets \$10 a month increase for the ensuing year, and should he achieve the distinction of having the best sub-division on the whole system his prize amounts to \$15 a month for 12 months.

The principal lines are inspected by the Chief Engineer, Engineer of Track, the Division Engineers, & by the supervisors on their divisions, but in marking the quality of the roadbed, no officer's marking is allowed to count while on his own territory. The branch lines are inspected by committees of supervisors from other divisions. For the inspection the party uses a special type of car, which has one end made as large as the bridges & tunnels will allow, & forming a great window behind which the inspecting committee sits on seats arranged in tiers. This car is pushed ahead of a locomotive, & an unobstructed view is thus obtained of each portion of the road as it is gone over. As each section is reached its number is called off & every inspector takes careful note of the alignment of the tracks, their surface, the drainage of the roadbed & its neatness, which latter includes adherence to the established standards of track work. As the practised eye of the track man glances along the roadway he can easily detect any irregularity in the alignment of a curve, any swing in a tangent, or sag, or too abrupt change in the surface of the track. He notes whether or not the ties are properly laid & spaced, whether the ditches are dug so as to carry off the water, the ballast clean, free from weeds, & dressed to proper shape, & the signs & crossings built & set according to established standard. He can tell from the oscillation or jolting of the moving car, whether or not the outer rail of a curve is properly elevated, detect any low joints, improper tamping of ties, or gauging of track. All these & many other defects are as apparent to him, if they are present, as dust on the furnishings of a room to the thrifty housewife. He records his observations on a blank form, using as his guide in grading the different sections the following table, which explains itself:

SYSTEM OF MARKING.

	Line.	Sur-face.	Drain-age.	Neat-ness.	
Perfect	30	30	20	20	100
Very good	25	25	17	17	84
Good	22	22	15	15	74
Fair	17	17	10	10	54
Poor	10	10	5	5	30
Bad	7	7	3	3	20
Dangerous	0	0	0	0	0

If a section of track were perfect in every respect, which of course never occurs, it would be marked 100; if it totals to 84, it must be very good track, & so on. These tabulated markings are all sent to the Chief Engineer's office, where they are averaged & consolidated, & everyone goes home to his division to await the announcement of the award, & to plan out his work to win next year "or bust." This inspection is supplemented later in the year, as a rule, by that

made by Dudley's Dynagraph car. It is to be hoped that the general public, as well as railway men will, ere long, realize what an important effect such a system of inspection as this, must have on the esprit de corps & efficiency of the force that works under it; & as they share in its good results, may they occasionally have a kindly thought for "the man with the pick."—Railroad Men.

The White Pass and Yukon Route.

By George H. Worcester.

After steaming about a thousand miles north from Puget Sound, during most of which trip friendly islands afford shelter from ocean's rude blasts, you awake one morning in the Lynn Canal, this designation having for some unknown reason been given to an arm of the sea projecting inland between high mountains. Rather than any canal familiar to us, the Suez, "Soo," Erie, or even the Mott Haven Canal, it much more resembles a Norwegian fjord or a somewhat enlarged edition of the dark Saguenay River. Farther along it forks into the Chilkat & Chilkoot Inlets, following the latter of which you come to other junction points, & finally a small one, each arm being really a kind of bay. At the head of these two termini stand what were but a couple of years or so ago rival towns, Dyea & Skagway. Behind each town is a pass over the mountains to the gold & mosquito infested lands beyond, Chilkoot Pass behind Dyea being on the shorter route, while White Pass behind Skagway, though the route is a trifle longer, is 600 ft. lower. Dyea rather had the bulge on her neighbor in business until the construction of the railway, which naturally selecting the pass of least elevation, began to make her, in spite of the aid of an aerial tramway, suffer from galloping dry rot. Several plans have been evolved on paper to build an opposition line through Chilkoot Pass, but so far they may all safely be characterized as wind. The papers also announce the construction of a line between Skagway & Dyea, a distance of four miles, in whose interest cannot well be ascertained. If it's part of the Chilkoot scheme it probably won't be built right away, while if in any other interest, it will be a knockout blow for it. In any event town lots in Dyea can be bought very cheap & seem likely in the not distant future to nearly be had for the asking.

The town Skagway strikes one as in a picturesque situation, lying in the foreground of the Skagway River's flat floored valley, whose sides rise almost vertically to hundreds of feet above; backed also by rugged, snow streaked mountain ranges, & with a sweep of circular foreshore in front. As an addendum, out in the Inlet the rock scenery is fine both in coloring & formation, & embellished with many a sparkling, translucent glacier. One of these showing beautiful tints of blue & green, caps a mountain across the Inlet right opposite the town, seemingly almost over it; a decoration of the skyward landscape that few burgs can boast of as so near, on tap from any street by merely raising the eyes. The naturally pretty circular sweep of the water front has been almost effaced by numerous wharves built out to deep water, which, as the tide rises & falls some 16 ft., are very high & several hundred feet long. At low tide is displayed a perfect forest of long, gaunt piles, hardly old enough yet to have acquired the seaweedy green fringes that solace their declining years.

Skagway is a country-built, wooden settlement, laid out in square blocks, with wooden sidewalks, dirt pavement, & a quantity of small buildings with these dreadful false fronts. One is at first somewhat surprised at the large size of it, comparatively speaking, which is changed to a feeling akin to admiration when the back part of town is reached.

ed, where the stumps, although razed off level, have not yet been pulled out of the streets. Their great number is the most convincing testimony possible as to what a job it must have been to tear down a thick forest & put up this town in its place. It is obvious that the railway has in a sense hurt the town, as is witnessed by the large number of buildings of all kinds to let. In the halcyon days of yore everybody had to tarry there a day or two to fit out or get pulled together for the trail. Now they take the first train & pass on without stopping. In the desire to levy some toll on passing business, common with all municipalities, the town is in a measure throwing several kinds of fits, even to the extent of publicly wishing itself Canadian in order that the customs bureau may be located there, & every passer through be necessarily held up awhile.

The railway in these yet almost primeval surroundings strikes one as odd, almost out of place, as perhaps a sort of exotic to be kept on ice, as it probably is - or under ice - a good part of the year. One track, narrow gauge, comes solitarily down the main street to the station at the water front, a comfortable wooden building with the general offices upstairs. It is very quiet about here except at train times. At this terminal they also handle barge freight by an arrangement that is unique. Out on the beach or foreshore runs a track that is submerged to the depth of several feet at high tide. Barges or scows loaded with freight are then floated in, & allowed to ground at low water, when cars are run out & the loading transferred to them or vice versa, all this necessitating some circumspection not to get caught by the rising tide. This barge transfer is chiefly to steamers, ex-

cept a small amount to Dyce, which will presumably disappear if the connecting line is built. Another branch for freight comes down under the cliffs at one side of the valley, & runs out to deep water where are several buildings. One or two engines switching here give some life to the scene.

The freight & passenger tracks unite at the yards back of the town. This is not a very large layout, consisting merely of a few round-house stalls, a small machine shop, & the inevitable crop of nondescript sheds that always flank such places. As the yards are surrounded by the pine forest which comes down to the back of the town, the whole place has a savor of Lonelyville, an out-in-the-woods look. The valley is filled with this forest, except where occupied by the much-sprawled-out Skagway River, which, as the valley floor rises, tears rapidly along down with considerable noise over its masses of boulders & pebbles. Whether to ease the grade or because it has to hunt for room, the railway crosses the river & then back again, both times on home-made bridges of wooden beams & iron braces, over both of which, ominous sign, the train slows down to a walk. Bridges & trestles, some of the latter quite large ones, are fairly numerous along the line & all of wood. The trains are not slowed over the rest of them, though full speed is not excessively fast.

At the back end of the valley, which appears to terminate rather suddenly, the line swings around 180° & comes back on the left or northwest side, now well elevated above the floor, so that one can look over the town out into the Inlet. At an opening scarcely before observed, where a stream emerges, the line swings out of the original valley high

over a canyon of surprising depth & the sides of which are very straight up & down. The rocks here & in several other places, designated all by new made names, such as Rocky Point, Porcupine Cliffs, etc., are peculiarly smooth & bare, so that during blasting for construction, the workmen had to be let down by ropes from above. By the use of modern methods some phenomenal masses of mountain side were tumbled down at one fell swoop during construction. All the rest of the trip till just a little bit off from the top, the line is as a rule pretty well aloft, so that from the left hand windows you can gaze down into deep canyons or open valleys, while from the right hand ones is an excellent opportunity to study geology, the vertical rocks of the inside of the shelf on which the line generally rests being but about 2 ft. distant. The location of the line along the sides of deep valleys is undoubtedly a fine piece of engineering, & in places where it runs up a side gulch or valley to gain altitude, & you can see the returning portion high above on the opposite slope, carried along on trestles & bridges over slanting or almost perpendicular gullies in the mountain side, it quite impresses one.

The entire length of the line except near the top has been partially spoiled in a scenic sense by the too common practice of letting the timber get on fire. This arises from sheer wantonness in the construction camps, where they won't take the trouble to extinguish the fires used for cooking, etc., which communicates to the adjacent brush or timber. This may burn for days, running clear up to the timber line & spreading more or less over the surrounding country, according to the wind, weather & conformation of the land. Instead of the beautiful green this leaves be-

C. P. R. LANDS.

The Canadian Pacific Railway lands consist of the odd-numbered sections along the Main Line and Branches, and in Northern Alberta and the Lake Dauphin District. The Railway Lands are for sale at the various agencies of the company in Manitoba and the North-West Territories at the following prices:

Lands in the Province of Manitoba average \$3 to \$6 an acre.

Lands in Assiniboia, east of the 3rd meridian, average \$3 to \$4 an acre.

Lands west of the 3rd meridian, including the Calgary District, generally \$3 per acre.

Lands in Northern Alberta and the Lake Dauphin District, \$3 per acre.

TERMS OF PAYMENT.

The aggregate amount of purchase money and interest is divided into ten instalments, as shown in the table below; the first to be paid at the time of purchase, the remainder annually thereafter, except in the case of the settler who goes into actual residence on the land and breaks up at least one-sixteenth thereof within one year, who is entitled to have second instalment deferred for two years from date of purchase.

The following table shows the amount of the annual instalments on a quarter section of 160 acres at different prices:

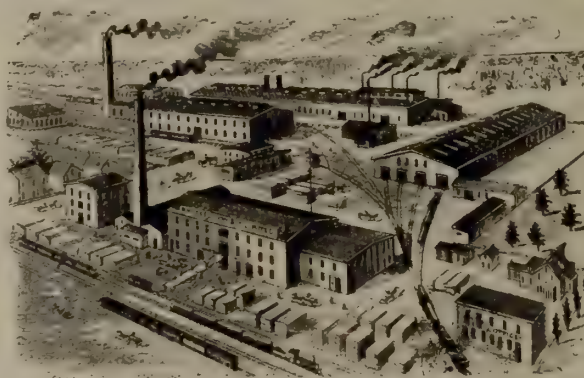
160 acres at \$3.00 per acre, 1st instalment \$71.90, and nine equal instalments of \$60.
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160 acres at \$4.00 per acre, 1st instalment \$95.85, and nine equal instalments of \$80.
160 acres at \$4.50 per acre, 1st instalment \$107.85, and nine equal instalments of \$90.
160 acres at \$5.00 per acre, 1st instalment \$119.85, and nine equal instalments of \$100.
160 acres at \$5.50 per acre, 1st instalment \$131.80, and nine equal instalments of \$110.
160 acres at \$6.00 per acre, 1st instalment \$143.80, and nine equal instalments of \$120.

DISCOUNT FOR CASH. If land is paid for in full at time of purchase, a reduction from price will be allowed equal to ten per cent. of the amount paid in excess of the usual cash instalment.

Interest at six per cent. will be charged on overdue instalments.

Write for maps and full particulars.

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J. R. Booth Elevator, Depot Harbor, Ontario	"	1,000,000 "
Cleveland Elevator Company's Elevator, Cleveland, O.	"	500,000 "
Erie R. R. Transfer & Clipping House, Chicago, Ill.	"	100 cars in 10 hrs.
Manchester Ship Canal Co.'s Elevator, Manchester, Eng.	"	1,500,000 "
Burlington Elevator Co., Peoria, Ill.	"	500,000 "
Canada Atlantic Railway Elevator, Coteau Landing, Que.	"	500,000 "
Northern Grain Co., Manitowoc, Wis.	"	1,350,000 "
Union Elevator, East St. Louis, Ill.	"	1,100,000 "
Montreal Warehousing Co.'s Belt Conveyor System	"	"

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hind acres of tall, gaunt, blackened stumps, or an inextricable mess of charred, shapeless fallen timber, neither sight conducive to beauty in the landscape.

The old trail can be seen below, generally in the bottom of the valley, except where forced up the slopes by the stream, or where it has to climb to pass above canyons. Now that it is little used it seems in excellent shape, & so little dangerous that the numerous tales of pack animals, chiefly horses, falling out of it seem almost chimerical. When all this took place, however, it was not the present level, comparatively broad & easy path, but a mere trail as worn out by the continuous tramp of human & quadrupedal feet, full of lumps, bumps, rocks & slides, & of sudden ups & downs as the price of wheat. A Seattle man who was there during the rush days told the writer that he had himself at one time counted as high as 500 animals below the trail between Skagway & the summit. Many of these had not fallen off themselves, but getting played out had been dumped off to clear the track. One of the spots where the greatest number tumbled was simply on a steep hillside, not so very high above the valley floor, but where some streams coming down soaked the whole ground more or less, making the trail very slippery. With their prospecting packs it was not a hard matter for the poor beasts to lose their equilibrium & fall.

In the floor of the valley well on towards the summit is a spot easily recognizable by the cleared state of the ground, the deposits of tin pans, broken wood & other debris, as the former haunt of civilization, now represented by, perhaps, a couple of tents only. Here was formerly White City, so called from its having consisted almost entirely of the tents of those in transit over the pass, as it was the last broad open space before the trail mounted rather steeply to the summit. The railway proved its boojum snark, & it has faded away & disappeared.

Near the summit the line runs up a lateral gulch, where it's too narrow to curve around, & the line makes a switch-back—not a convenient thing to have in the main track—from which point on those who had but rocks to contemplate before now get a view out into the world. A tank, & of course, a turn-table, are here, the latter housed-in, a reminder that the "beautiful" must abound in winter. Before attaining the top one gets some fine peeps back over intervening hills on to the Inlet, several miles distant & some 2,500 ft. below, which has that beautiful deep turquoise blue color found on lakes setting low among high hills.

Arrived at the summit, where one rather expects a view off in the other direction, there is disappointment, as the pass or valley through which the line passes is quite shut in by higher hills. The summit lake, much resembling a section of river, begins here, & winding out of sight, is $7\frac{1}{2}$ miles long, so the railway runs that distance on the level before commencing the slight descent towards Lake Bennett. The boundary line between Alaska & Canada is pointed out behind the group of station buildings, where a rope is stretched thwartship the scene. While the rope is there it would be unsafe to gamble that it were the exact boundary. Rather more, it is gotten up for trotters on the well-known supposed principle that everyone who comes from somewhere else is a sucker. The station building proper is over in Canada at the head of the lake. Some other small shanties are called customs houses, & the usual collection of shacks, car bodies, etc., are planted about on the rocks. Standing some feet apart, & between which runs the supposed boundary, are the British & U.S. flags side by side. Under them & somewhat back is a heap of stones on which is a favorite spot for globe-trotters to get photographed with both en-

signs showing in the picture. Some of the Canadian Northwest Mounted Police are standing about in khaki uniforms, with broad felt hats with four dents in the crown, every one looking like the pictures of "B.-P." so numerous published after the relief of Mafeking. There is a sergeant's guard of "culled" troops below in Skagway, but none of them seem to be stationed at the summit, as they would make bad feng shui in the landscape.

The series of lakes & connecting rivers uniting to form the Lewes River (which subsequently uniting with the Pelly forms the Yukon) is well known from multitudinous published articles. Beyond the summit the line cuts across country, skirts Lake Bennett & ends at present at White Horse on Fifty Mile River (connecting Lakes Marsh & Labarge) 112 miles from Skagway, to which point it was opened at the close of last July. This terminal is just beyond White Horse Rapids & Miles Canyon, so that navigation from there on is unobstructed, except a rock at Five Finger Rapids near the Yukon, which the Canadian Government is now removing. The ultimate intention is to carry the road to Fort Selkirk at the head of the Yukon, 383 miles from Skagway, but whether it is going on to Dawson, 176 miles farther, deponent sayeth not. As the line crosses several boundaries—Alaska & two Canadian provinces—it is made up of several corporations; the Pacific & Arctic Ry. & Navigation Co.; the British Columbia Yukon Ry. Co.; the British Yukon Miners' Trading & Transportation Co. (now curtailed to British Yukon Ry. Co.), as well as some minor ones, all of which are operated under the name of the White Pass & Yukon Route.

They at present run 2 passenger trains a day each way, averaging about 4 hours north bound & $3\frac{1}{2}$ south for the 112 miles. Obviously there is no use of hurrying, & they don't. The freight business seems to be heavy enough to have caused several blockades, not of cars, as the amount of rolling stock is both somewhat limited & fixed, but of the freight itself, chiefly at White Horse, from which fact the blockade is probably due to lack of facilities. The not very large freight trains have the odd look due to a lot of cars all of the same pattern & markings, instead of the diversification found with us. With scarcely any of night's darkness in June, the culminating point of a superfluity of daylight, it is not so bad railroading there throughout the summer. But with the heavy rains & drifting snows of winter, with the Arctic cold & winter darkness, it must seem a desponding story about Christmas time.

The rates on this route are of a tallness that quickly convinces the dear public that the management are not there for their health. As a fact, en passant, most of the officers live in the U.S., even as far away as Chicago, only a portion of the operating staff facing the woes of darkest winter in this far from home land. The local passenger rates are about 25c. a mile, thus making the fare to the summit (21 miles) & return \$10. It is the custom when the summer tourist steamers touch at Skagway to give a half rate (\$5) for an excursion to the summit for a guaranteed 50 tickets. On the steamer on which was the writer, 106 excursionists turned out, so the company netted practically \$530 for the use of an engine & 3 cars for 42 miles. As a compensation for the somewhat stiff price, each excursionist was presented with a wealth of paper for his ticket, which consisted of 2 coupons, & a souvenir portion on which the road was boldly dubbed "the scenic line of the world." For longer distances the rate comes down a bit, as the fare to White Horse, 112 miles, is \$20, averaging about 18c. While the writer did not hunt up freight rates, it is fair to presume that they correspond to a considerable extent with the scenery, which is mountainous. It is quite a common practice

for owners of live stock to drive over the trail rather than pay freight charges.

They sell through tickets to Dawson & Cape Nome via the Yukon, & for that matter you can buy round-trip tickets from any Pacific coast port to the Klondike or Cape Nome via this route & return direct by steamer. The Canadian Development Co., a protegee of this line on the Yukon, has 9 steamers of small size averaging room for say 150 passengers & 75 to 200 tons of freight, & the railway company has traffic arrangements with several others. There are also numerous independent boats, & some people say that better time can be made by buying local tickets, thus enabling one to take the first steamer that departs, rather than be tied up waiting perhaps for one of the Co.'s vessels, on which alone of course the through tickets are good, & which do not always connect with the trains. From all accounts one must get insured before trying the independent steamers, as they (of not very rugged constitution possibly in the first place) sometimes take great chances in cutting off corners, etc., to make time, & accidents are by no means unknown. Recently while trying to turn a short corner one turned over & several people were drowned or hurt. A severe rate war was on between the Co.'s steamers & the independents, by which the original fare of \$80 between Dawson & White Horse had been cut to \$40 up-stream & \$30 down by the Co., while the opposition went as low as \$15. The latter price, as it included beds & meals—such as they were—was low enough for the 447 miles, provided you reached your destination. The latest reports, however, relate that a truce has been patched up & rates raised somewhat.

This route uses time one hour slower than Pacific time, Skagway being roughly about $12\frac{1}{2}$ " (15" equal one hour's difference in time) west of San Francisco. The writer should have ascertained the name of this time, but didn't. However, any old name—Alaska, Klondike or Yukon time, as it does not strike any other land south—would do, & probably one of these names is used.

The rolling stock is all of the customary types of narrow gauge equipment. The coaches are of stock pattern found everywhere, chiefly reprehensible for the sliding window-blinds which cut off any upward view. Luckily, on this route all the scenery is below. Narrow gauge coaches are generally rather tucked-up & teetery on their springs, & these are no exception. As a goodly portion of the community in this region are free & easy in their methods of life, such as continually wearing a quid of tobacco in the cheek with the consequent expectoration, & are not too fin-haired about the spotlessness of their surroundings, they do not expect too clean accommodations when traveling, & the state of neatness of the coaches is allowed to be en rapport with these views of unembarrassed unconventionality. There are also some special corridor cars consisting of flat cars with plank seats & decked over with a roof. The upholstered seats run across the car leaving the passageway on one side, the whole surrounded by a practicable fence. These are used for excursion business, as they allow an unrestricted view below & aloft. All the equipment has link & pin coupler. Of locomotives they have several diamond stack, 4-wheelers & some Baldwin consolidation compounds with frames outside drivers. The dimensions of the latter are:

Weight on drivers.....	80,000 lbs.
" total.....	89,500 lbs.
Drivers, diameter.....	38 in.
Cylinders.....	11½ in. and 19 in. x 20 in.
Steam pressure.....	200 lbs.
Boiler, diameter.....	56 in.
120 tubes.....	2¼ in. in diam.
Heating surface, tubes.....	1,060.81 sq. ft.
" fire box.....	65.38 sq. ft.
" total.....	1,135.19 sq. ft.
Grate area.....	15.7 sq. ft.
Capacity tank.....	3,000 gals.

Whether owing to their isolated position or not—that is, from machine shops of large capacity—their motive power appeared to be in somewhat dubious shape at the time of the writer's visit. Our high-priced excursion had to wait some time for an engine, & when it came it was a Vauclain compound with a broken L. P. cylinder, so we made the trip with one side only. Luckily it was a consolation.

The location of this line is apt to strike one as pretty far north, as from the northwest corner of the U. S. one steams about 1,000 miles further north, creating the impression that one must then be pretty well up toward the Arctic regions. But although one could cut ice up at Skagway & thereabouts, at least during a considerable portion of the year, this would be a much less ice cutting location both literally & metaphorically on the other side of the world. Skagway is in about the same latitude as St. Petersburg & Christiania, so some of Russia's railways, including the entire system of Finland & the line to Archangel on the White Sea, as well as half of Sweden's & four-fifths of Norway's systems, are north of this point. The systems of the two latter countries extend generally about three hundred miles north of Skagway's latitude, with detached bits further north, topping off with a line from the Gulf of Bothnia across to the ocean that is partially within the Arctic circle.—Railroad Men.

A Sketch of Sir Wm. Van Horne.

H. R. Lewis contributes to Ainslee's Magazine an interesting sketch of the Chairman of the C.P.R. Co.'s board. The writer of the sketch takes his readers to a scene in the heart of the Rockies while the C.P.R. was still under construction, where the General Manager's makeshift private car was an object of awe & reverence to the army of Siwash & Chinese railway laborers, summoned from far & near in anticipation of a catastrophe.

Rising winds & the melting snows of spring had revived a score of mountain streamlets, changing them almost in a breath from purling brooks to menacing torrents, & causing them to bear impetuously toward a certain locality given on the map as Stoney Creek.

It was here in the very heart of the Rockies that the giant trestle of the new road had stretched its wooden legs across from bank to bank like some great spider. And it was because of the fear that the costly framework, which formed a necessary link between two important sections of the road then building, would be imperilled by the rising waters, that armies of laborers had been moved by night, that officials of every degree, & that even he, known familiarly as the "old man," hastened on foot, on construction trains & by private car to the scene.

The work, the hurry, the bustle of these pigmies with their rough costumes, rougher speech & queer machines, were strangely out of place in this spot. The silent mountains

closed in about them as if to hide their iconoclastic work. Interminable stretches of snow & ice glinted above them. Forests of pine & spruce & masses of hardy brush carpeted the lower levels of the great canyon. Gusts of wind sweeping down from above sent the smoke of the locomotives swirling in arabesques.

There were men felling trees & men drafting great logs, men building trestles & braces & wooden bulwarks, men laboring to the utmost of their physical powers & men directing their labors, & one man there was, sturdy, plainly dressed & calm of bearing, who directed the directors. He seemed to be everywhere, giving his personal attention to each detail of the work. He found the spots claiming immediate attention & measured accurately with his eyes the speed of the rising waters.

He superintended the unloading of rock brought by puffing engines & assisted with his own hands in placing the heavy blocks of stone. He told the carpenters how to secure the huge wooden braces, the smiths where to fasten their iron clamps & with it all never lost for one moment his cool, authoritative demeanor.

All through the day he drove the men & drove himself, & when the light of the fading sun vanished beyond the western peaks, he saw that the bridge was saved.

The Chinese laborers & the Siwash construction hands limped slowly to their little camps built here & there in the crevices, & along the ledge wrought for the tracks. As the shadows darkened into night, the General Manager made a final tour of inspection & withdrew, soiled & worn, to his car.

A few moments later the groups of tired men huddled about the camp-fire heard a strain of music mingling with the voice of the torrent, & the sigh of the winds in the pines. They exchanged wondering glances, & asked one another the cause of the unexpected melody. They got up to find out. Presently the Siwash & the Chinese, the foremen & the skilled mechanics were standing at a respectful distance from the private car, gazing wonderingly through a window, at a toil-stained man seated just within. Tucked under the bearded chin was a violin; a bow, grasped tenderly by a hand still bearing the stain of work, passed slowly across the strings. An aria from Gounod floated out into the night.

"Say, fellows, it's Van Horne himself," commented one of a trio of engineers in the group surrounding the car.

"Yes, & it's a sign that he's satisfied with the day's work," replied another. "The old man plays that trembly sort of a piece when he's pleased, & he plays it like he works, & like he paints pictures, & like he manages men—a little better than any one else on this here earth."

In February, 1843, a boy was born in the Van Horne family, then living in a small cross roads settlement, called Chelsea, 14 miles from Chicago. The farmer was a law-

yer of some local repute, but failing fortune compelled his son William to enter the service of a farmer at an early age. William hoed potatoes & curried horses, & is said to have done both very badly indeed. He was as a lad a dreamer of dreams & a seer of visions. He read every book he could lay his hands upon, & drew crude maps of engines & of ships. One day he took up the study of telegraphy. It was an inspiration, one of those trifling acts in a man's career which sometimes forms the turning point in his career.

Wm. Van Horne soon withdrew from the farm & entered the service of the Illinois Central as a cub telegraph operator. This was when the road was under the management of General McClellan & Ackerman, & other

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early-day managers. The new operator received \$40 a month, a munificent salary for a boy whose only training had been bounded by the rail fences of an Illinois farm. It is said of him in those days:

"He learned to fiddle a little & drum a piano, & having a talent for drawing, he began to cultivate art. He once drew a caricature of Gen. McClellan on the brown painted side of his telegraph station on the Illinois Central, which came near costing him his place. The picture represented the General in full regimentals, but in a dangerously undignified attitude."

This was but the exuberance of the boy; he had not seen then the scope of the world, or realized what it had in store for him. The position of operator was the first step in a railway career destined to prove remarkable. It was the first round in a ladder of uninterrupted success, a ladder covering the gamut of railway positions, & ending in the absolute control of the C.P.R., the greatest railway system on earth, & in a British knighthood.

Mr. Van Horne's earlier years after his operator's experience were spent in & about Chicago. He filled scores of positions, each better than the other, until about 1879, when he was appointed General Superintendent of the Chicago, Milwaukee & St. Paul. His big brain, his intense personality, his tremendous energy, & his ready grasp of every railway problem, made him even then a conspicuous figure among railway men. It probably would have been better for the U.S. roads if Mr. Van Horne had remained on that side of the line. Certain it is that he could not but have added to the progress of any undertaking with which he might have been connected.

It was not to be, however. That same hand of fate which had lifted him from the farm to the telegraph office, & from the telegraph office through various stages to the general superintendency of an important

road, was about to carry him into another country, & to a work destined to form one of the most conspicuous chapters in the world's railway history.

While Mr. Van Horne was overseeing the welfare of the St. Paul road, events of future importance to him were unfolding north of the boundary line between Canada & the U.S.

It is a common remark up there to-day that Sir Wm. Van Horne is the C.P.R., & the Canadian Pacific is Canada. Yet when the wonderful railway was first projected, Sir William had not been thought of in its connection.

A railway from the Atlantic to the Pacific, all the way on British soil, had been the subject of discussion & planning for almost half a century. In 1867, on the Confederation of the British North American Provinces, its realization was found to be a political necessity. With the newly-formed union came a renewed envy, if it might be so termed, of the prosperity of its southern neighbor, the U.S.; & there was an almost unanimous belief that a trans-continental railway was necessary to the well-being & the growth of the country.

In 1875 the Canadian Government set about

The early difficulties in connection with the construction of the line are well known. The C.P.R. Co. took hold of the project in the spring of 1881 & before the end of the year 163 miles had been built on the prairie westward from Winnipeg. It is needless to recapitulate the story of the opposition, secret & open, at home & abroad, which the undertaking encountered. It was declared that the formidable obstacle along the north shore of Lake Superior could not be overcome in twice the ten years stipulated as the time within which the line was to be completed.

It was asserted that the north shore section would never be built, because, they were assured, other routes would in the meantime have come into being, rendering the construction around Lake Superior unnecessary. There was indecision & hesitancy, delay & bickering, & then a man stepped into the breach.

A month or two earlier a new incumbent had been secured for the position of General Manager of the road. The need for a practical railway man had caused the projectors of the Co. to look about them, & they finally offered the position to the then General Superintendent of the Chicago, Milwaukee, & St. Paul Ry.—W. C. Van Horne.

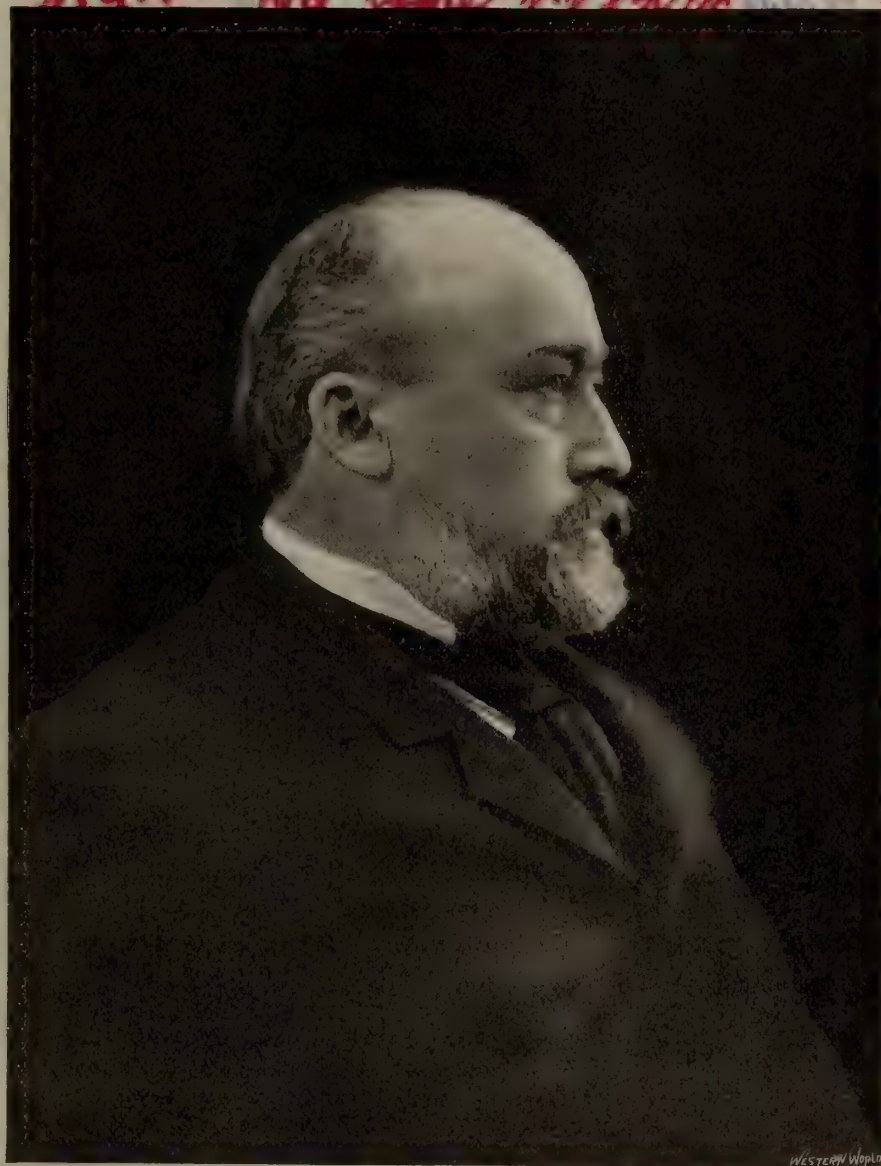
This was an important step, as it really meant failure or success to the Co. The compliment thus paid to the U.S. railway man, who, starting in life on a farm, had worked his way up to a position high in railway circles, cannot be overestimated. It practically meant saying to this son of Illinois, this foreigner, "Here, we have reached our last ditch. Our future depends upon you. Now, save us if you can."

Students of latter-day Canadian history like to dwell upon this part of the C. P. R. story. To them it means an epic of individual prowess, the warfare of a strong man—strong mentally & physically—against almost insurmountable obstacles.

Within a few weeks of his appointment, Mr. Van Horne made his

presence felt. When the enemies of the road began to decry the building of the north shore section—that along the upper end of Lake Superior—Van Horne promptly advocated the retention of the original plan, & insisted that an all-Canadian line was absolutely necessary. His opinions, backed by the extraordinary influence he had already commenced to exercise over his associates, were accepted & he plunged into the work with all the strength of his iron nature. His first task was to attack the wilderness on the north of Lake Superior.

Twelve thousand railroad navvies, & from



SIR WILLIAM C. VAN HORNE, K.C.M.G.

Chairman of the Board, Canadian Pacific Railway Co.

the building of the C.P. R., a task of such vast moment that the richest empire of Europe might well have hesitated before entering upon it. Previous railway construction had been child's play compared with this project which proposed venturing with bands of steel into regions hitherto unexplored, & lying in a country certain to offer formidable obstacles. Toward the east, all about Lake Superior & beyond to Red River, was a vast rocky region where nature in her younger days had run riot, & where deep lakes & mighty rivers in every direction opposed the progress of the engineers.

1,500 to 2,000 teams of horses were set to work, involving the use of a dozen steamers for the transport of material & provisions. It was a small army in number, but its motive, creation instead of extinction, made its work of wonderful interest. The problem boldly faced by the new General Manager was one calculated to daunt the most venturesome & daring spirit. In his preliminary & personal survey he had found what he afterwards characterized as "200 miles of engineering impossibilities."

The country it was necessary to cross was a waste of forest, rock & muskeg, out of which almost every mile of road was hewn, blasted, or filled up, & in places the filling up of muskegs proved to be a most difficult task.

There were moments during the work when even Van Horne's stout heart almost failed him. Discouraging reports from surveyors & engineers, the discovery of unexpected obstacles, & the varied phases of weather, rain following cold & floods following rain, made the task hard beyond the comprehension of ordinary men. But there was that in the old Dutch stock of the Van Hornes & perchance in the American spirit of the Illinois-born man, which caused him to hammer away at the problem until he finally succeeded. It is well to say in passing, that if Van Horne had accomplished nothing else, his victory over the engineering difficulties afforded by the line along Lake Superior's north shore would give him fame enough for one man.

While the work of constructing the Lake Superior north coast line was progressing, other portions of the great system were receiving the attention of the tireless General Manager & his assistants. To those who have travelled over the C.P.R. from Montreal to Vancouver, the feat of building a railway under such conditions & through such a marvellous country is past understanding. The obstacles presented along the north shore fade into insignificance when compared with those encountered after entering the majestic Rockies. Practically every foot of the mountain division of the road was contested & probably every mile of tunnel & track was sealed with the blood of man.

The bridging of fathomless chasms & the piercing of many mountains were accomplished only after herculean labor & much suffering physically. There are bridges in this mountain division that hang in air—mere spider webs of iron—300 feet & odd above the river they span. There are places where masonry is plastered against the solid rock of the mountains. There are ledges midway between heaven & earth, & elevations where the whirling trains plunge headlong into clouds & deep, cool ravines, where the road-bed disputes with the darkness, the realm of mysterious mountain torrents.

There are miles of tunnels, & bridges without number. On the mountain division alone the exigencies of the winter season compelled the construction company to build 32 miles of snow-shed, & that at the enormous cost of \$64 a lineal foot. Over \$10,000,000 expended as a preliminary precaution against snow!

Small wonder that the Queen honored the man who faced all these problems & was daring enough to undertake such a colossal task, with a knighthood of the distinguished order of St. Michael & St. George!

While the mountain division was being carried through, the government contractors had finished certain other portions of the road, enabling the company of which Mr. Van Horne was General Manager, to take possession in conformity with the terms of the contract, & to connect the Pacific portion of the line with that coming from the East.

Finally, one rainy day, Nov. 7, 1885, a party assembled at Craigellachie, a short distance west of the Columbia River & one of them, Sir Donald A. Smith, drove the last

spike of the connecting rail, thus establishing a railway from ocean to ocean within Canadian territory.

That picturesque ceremony was of unbounded interest to the American people for two reasons. First, because it meant the completion of a railway destined to become a formidable factor in the carrying trade of the North American continent; secondly, because, assisting in the ceremony, was a man of their own kind, who, with his own brains & with his own hands had added to the list of great human achievements one of enormous & far-reaching proportions.

In the history of great enterprises the work itself must always take second place. Human interest lies in the man or men who planned & accomplished the work. It has already been said in this article that Sir Wm. Van Horne could rest his fame solely upon the building of the C.P.R. But he is more than a general manager, or a president, or a railway builder. He has been compared to Cecil Rhodes from the standpoint of marvellous versatility. He is an artist of undoubted ability & a connoisseur in music. He reads Spanish, Italian & Japanese with facility, & has made an exhaustive study of the art, history & literature of Japan. His interest in the latter country has caused him to undertake an extended history of Japanese art which will be published in many volumes, illustrated in color by Sir William himself, with sketches of all the exquisite gems in his own collection.

In his palatial home in Montreal Sir William has a magnificent collection of paintings, ancient & modern. The Dutch seventeenth century school is largely in evidence, while modern French, English & Spanish are represented. In addition to the engrossing cares of a railroad magnate, having under his supervision a gigantic corporation valued at \$200,000,000, Sir William has found time to become a prosperous amateur farmer in two provinces, & to cultivate special species of mushrooms. To-day he is still comparatively young—only 57 years of age—and from all appearances he has barely commenced to employ his talents.

Staff Register on the C. P. R.

The Second Vice-President and General Manager has issued a circular from which the following are extracts:—

A complete staff register, to include the following classes of employees, will hereafter be kept in this office:—

Agents, station, ticket,	Hostlers,
passenger, freight,	Inspectors—car & other,
Baggagemasters,	Linemen, telegraph,
Baggagemen—station & train,	Master mechanics,
Brakemen,	Master mechanics' assistants,
Call boys,	Operators,
Car sealers, markers & carders,	Photographers,
Checkers—car & freight,	Policemen,
Clerks,	Porters—sleeping & parlor car,
Conductors,	Pumpmen,
Despatchers, train,	Repairers—car & other,
Doctors,	Roadmasters,
Engineers—civil, locomotive & other,	Signalmen,
Elevator men,	Storekeepers,
Firemen,	Storemen,
Foremen—shop, section, locomotive, car & other,	Switchmen,
Flagmen,	Tankmen,
Fuelmen,	Timekeepers,
Gardeners,	Watchmen,
Gatemen,	Weighmen,
Accounting department staff.	Wipers,
Bridge & building department, shopmen, engine house men—all classes, with the exception of ordinary laborers.	Yardmasters,
	Yardmen,

Hotels—clerical staff, housekeepers, stewards, head waiters, chefs.

Dining car crews.

Pacific steamships, lake steamers, Columbia & Kootenay steamers, Windsor ferries—officers.

To inaugurate this register it is necessary that the record of each employe, in the classes above mentioned, since entering the Co's service, should be obtained. A form has been prepared for this purpose, & the head of each department must arrange to have such filled up by those employed under him, & sent to this office at the earliest possible date.

Commencing Jan. 1, 1901, all employes then in the service of the Co., unless specially engaged otherwise, will be considered as on the permanent staff. Thereafter all new hands employed, unless otherwise specially arranged, will be considered as on the temporary staff, & will not be transferred to the permanent staff until after six months' continuous service, & then only in the event of satisfactory service & on the recommendation of head of department on form provided. Proper records must be kept by each department so that this form may be submitted promptly at the end of the six months' term, in the event of satisfactory service.

Any employe on the temporary staff found incompetent for transfer to permanent staff must be relieved from the service, & notification sent to this office on form provided.

The fact that any employe is or has been on the permanent staff within the meaning of the above regulations, shall not in any way affect or alter the rights of either the Co. or of such employe in respect of the termination of his services or compensation therefor, & all such rights shall be the same as if there were no such permanent staff as is above provided for.

All new applicants must present, prior to engagement, or if by special arrangement, within 30 days thereafter, testimonials of character or references from previous employers for at least the three years preceding engagement, provided they have been so long employed. Record of such hands on form provided, with copies of testimonials, must immediately on engagement be sent through the proper officers to this office for approval. Heads of departments will take the necessary steps to ascertain that testimonials & credentials presented by new hands are authentic, using form provided for the purpose of communicating with outside parties.

All promotions or change of position of men in the service, with or without change in salary, must be reported to this office for approval on form provided.

In the case of enginemen, trainmen, regular relieving despatchers, relieving agents, & relieving operators, it will only be necessary to report changes when transfer is from one general superintendent's division to another.

No engagement, transfer or promotion will be effective except from day to day until approved by this office.

In submitting forms for approval of employment of new hands, or change of one already in the service, for a temporary period, it must be stated approximately what length of time such engagement or change is intended to cover, & if it be found necessary later to extend the period, another form must be submitted.

Advice of all employes resigning or dismissed from the service must be promptly reported on form provided.

Whenever an employe not included in classes above named (section laborers, freight shed & station porters, &c.), is discharged for such cause as may be considered sufficient to make such person an undesirable future employe on any division, advice must be sent to this office on form provided.

Certificates of service on form provided must only be issued by the following officers:

Managers Eastern & Western lines.
General superintendents.
Passenger Traffic Manager.
Freight Traffic Manager.
Manager Telegraphs.
Treasurer.

Supt. S. P. & D. Cars & Hotels.
Supt. Steamship lines.
Gen. Purchasing agt.
General Fuel Agent.
Supt. Car Service.
Land Commissioner.
Supt. Rolling Stock.
Master Car Builder.
General Storekeeper.

Such certificates must be numbered consecutively by each department & a copy sent to this office. An employe must not receive certificate on being transferred from one position or department in the Co's service to another. Any person re-employed in the service of the Co. must, on re-employment, return any certificate previously received to the head of the department or officer re-employing him, & same will be retained to be embodied in any future certificate issued. Complete record of all certificates issued must be kept by department issuing same.

Men over 40 years of age seeking employment in the Co's service must not be engaged unless under special authority from head of department. It is the desire of the Co. to fill vacancies that may occur in the service by promotion rather than by the employment of outside experienced men. In promotion, preference will be given to those who show by their work that they have a desire to thoroughly acquire a knowledge & understanding of railway work.

In the clerical staff, preference will be shown those who become proficient in shorthand, typewriting & telegraphy, & the Co. will establish schools at Montreal, Toronto, & Winnipeg, for the purpose of giving employes an opportunity of acquiring a knowledge of the same.

The Central Canada Chamber of Mines, which has its headquarters at Winnipeg, has obtained several concessions & a grant of \$1,000 from the C.P.R.

This century received from its predecessor the sailing ship; it bequeaths to its successor the steamship; it received the beacon signal fire; it bequeaths the telephone & wireless telegraphy.

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Notice.—Loafing either in or about this room is strictly forbidden, and must be observed.

Myer.—I wonder what causes concussion of the brain?

Gyer.—A collision between two trains of thought, I suppose.

A landscape photographer has been engaged for the Delaware, Lackawanna & Western R.R. to take a six weeks' trip over the road for the purpose of photographing scenes upon it. A special locomotive will be provided, & a platform will be built in front of it, enabling the photographer to take pictures while the train is in motion.

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Private Office.	Dining Room.
Ticket Office.	Lunch Room.
Telegraph Office.	Restaurant.
Baggage Room.	Ladies' Toilet.
Smoking Room.	Men's Toilet.
Smoking Prohibited.	No Admittance.
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Size 10 x 2½ inches. Oblong, oval ends, white ground, blue letters, lined & tipped, hollowed:

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Luggage Room.	Private.
Office.	No Admittance.
Refreshments.	No Road.
Exit.	Boarding House.
Fire Escape.	Private Board.
Lavatory.	Dressmaking.
Ladies.	Fresh to Day.
Women.	Teas Provided.
Gentlemen.	Please Shut the Gate.

Size 14 x 3 inches. Oblong, oval ends, white ground, blue letters, lined and tipped.

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Size 18 x 3½ inches. Oblong, square ends, white ground, blue letters, lined & tipped.

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Please Shut the Door.

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Oval, size 2 x 3 inches, white ground, blue letters, tipped, hollowed, lettered Push, Pull, as above.

Oblong, square ends, size 3 x 1½ inches, white ground, blue letters, tipped, lettered Push, Pull, as above.

Perpendicular, square ends, size 12 x 3 inches, white ground, blue letters, lined & tipped, lettered perpendicularly, Push, Pull.

Oblong, square ends, size 12 x 3 inches, white ground, blue letters, lined and tipped, lettered horizontally, Push, Pull.

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